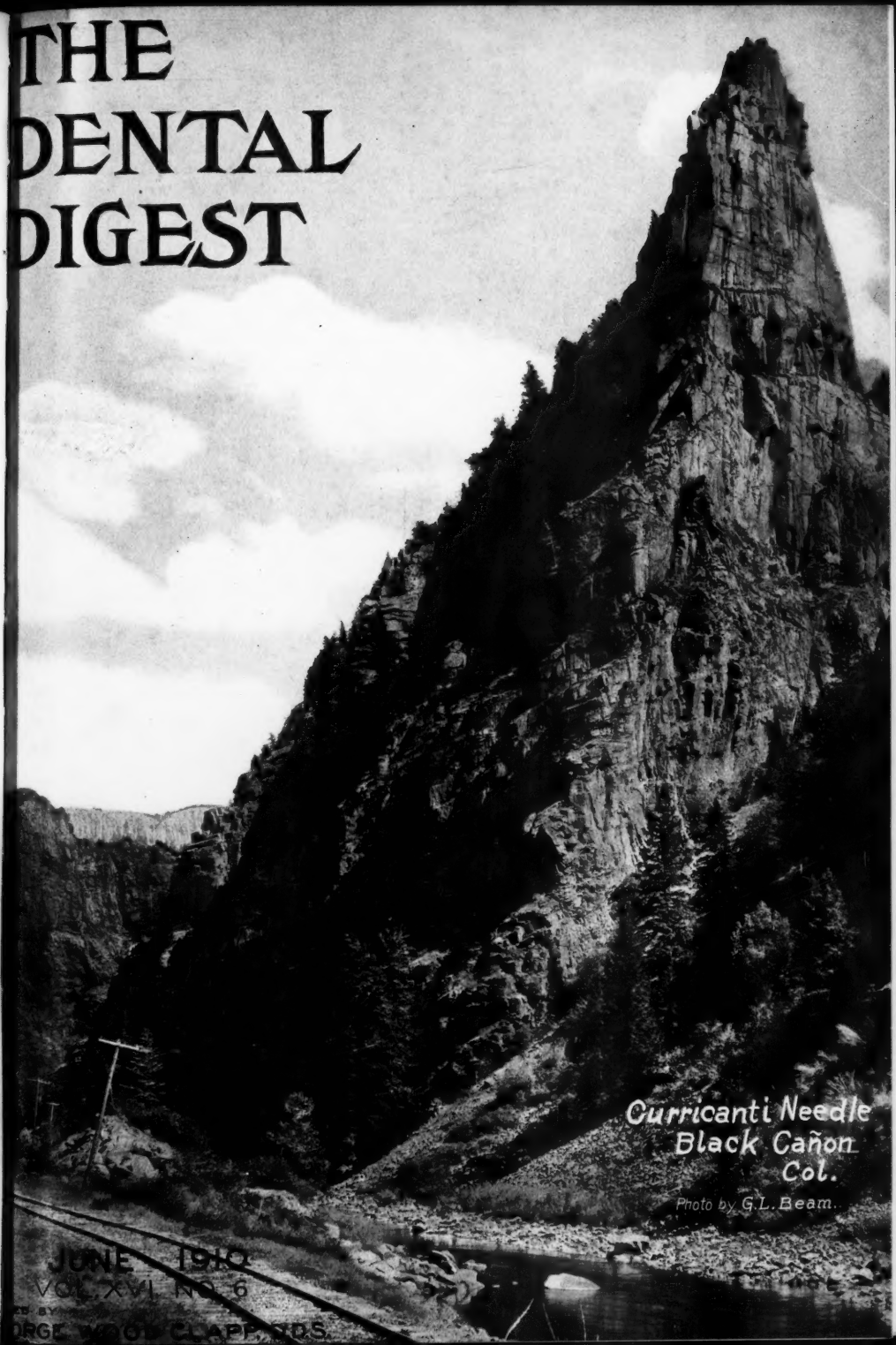
THE DENTAL DIGEST



Curricanti Needle
Black Cañon
Col.

Photo by G.L. Beam.

JUNE 1910
VOL. XVI NO. 6

ED BY
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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., Editor

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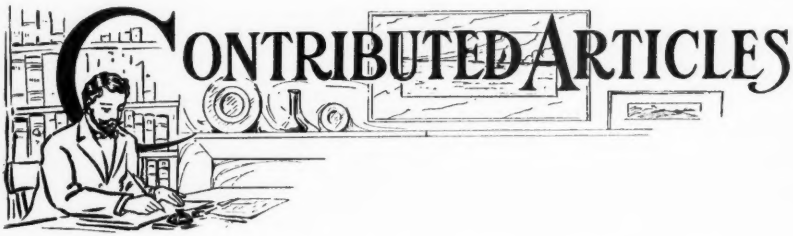

THE MECHANICAL SIDE OF ANATOMICAL ARTICULATION*

(Continued)

BY GEORGE WOOD CLAPP, D.D.S., NEW YORK

(Sixth Article)

Synopsis of previous articles:—The visible characteristics of anatomical articulation in natural dentures have been outlined as well as those features of it which may be reproduced in artificial dentures. The successive steps in proper bite-making have been considered. The "occlusal plane" of the bites has been determined; the bites have been built to correct heights and fullness and have been marked for the sizes of the teeth. The teeth indicated for the case have been selected and laid aside till the time for their setting. By means of the Face Bow the models have been mounted on the articulator so as to reproduce any peculiarities the case may exhibit.

WHEN the models have been properly mounted on the articulator by means of the bites and face bow, the inclination of the condyle paths of that particular patient should be determined. There is something of a formidable sound about that term "determining the condyle paths."

* This series of articles began in December, 1909.

It savors of something that we know but little about. And many dentists have doubtless been deterred from mastering this part of the work by the name given to it.

But the step itself is really very simple, thanks to the mechanical appliances now available. It is not more complicated or difficult than the use of the face bow. A few words of explanation as to why it is necessary may not be amiss.

All persons do not chew alike, at least so far as the movement of the condyle is concerned. In a few people the condyle moves almost horizontally forward and back. In others, it moves nearly straight up and down. Between those horizontal and vertical extremes there may be found in different people, almost every degree of variation. The

FIG. 35.—Bite gauges as furnished with articulator.

average condyle path probably shows an inclination of 33 degrees* from a horizontal line, running from the ear to the nose, as in illustration No. 13.†

Many dentists use articulators having fixed condyle paths. Some have horizontal condyle paths and others have an inclination approximating 33 degrees. Articulators with horizontal condyle slots are, in the writer's opinion, but little better than plain line articulators. Those articulators having condyle slots of approximately average inclination are much superior to those having no such slots, or only horizontal ones. For many cases, articulators with fixed condyle slots of medium inclination will prove quite satisfactory. They offer a possible short cut to the desired end of good articulation. But for many cases they must be insufficient, and one could never know whether or not this was the case, save as dentures articulated on them, fell short of full service in the mouth.

The practice of determining the condyle path for each side of the patient's face is so simple, once the procedure is understood, and requires so little labor that it must appeal to every ambitious prosthetic worker as the more desirable course. Furthermore, one need know little of the theories involved, to bring success. It is necessary only to follow certain easy mechanical steps and abide by the results. While the determination of the condyle path is here described only in connection

* Gysi, *Cosmos*, January, 1910.

† THE DENTAL DIGEST for January, 1910, page No. 13. The plane in which this line lies is known as "the occlusal plane."

with denture making, it is quite as valuable to the crown and bridge worker. By making full models of both jaws, mounting them by means of the face bow, and determining the condyle paths of the

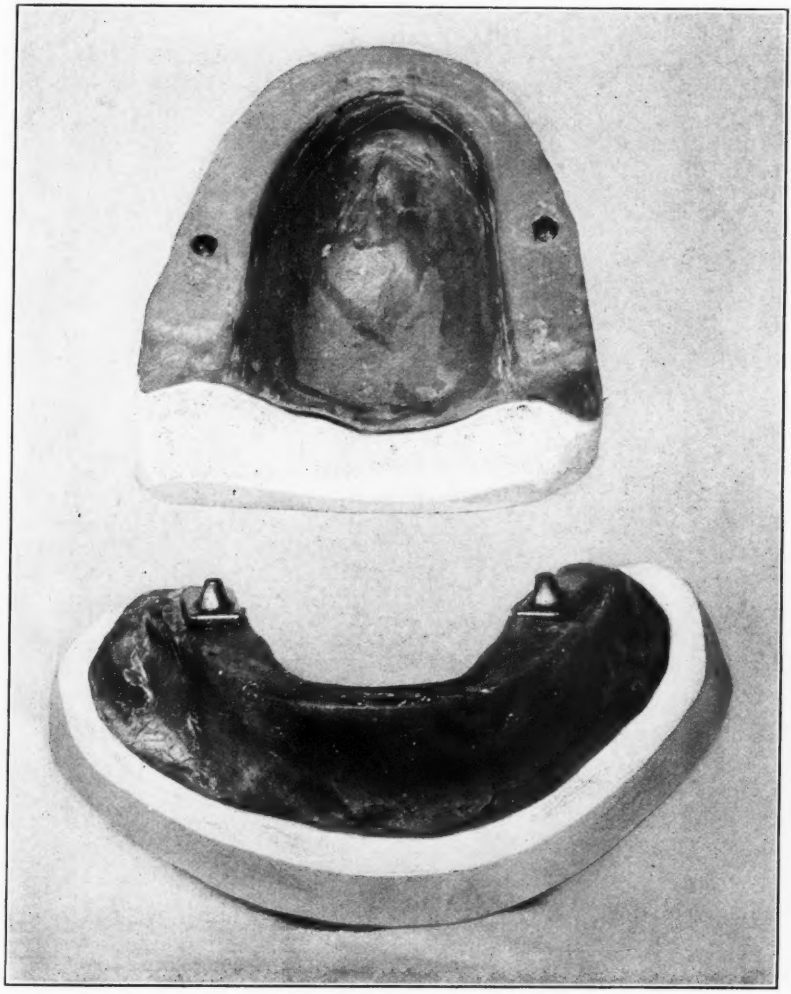

FIG. 36.—Lower bite with "bite plates" in proper position. Upper bite showing holes made by cones of "bite plates" when protruded bite is taken.

patient, the stress to which the crown or bridge will be subjected in service will be at once apparent. And crowns or bridges may be so prepared as to avoid or successfully withstand strains which, but for these precautions, would have been unrecognized and perhaps fatal to the piece.

THE PROTRUDED BITE

With at least one of the articulators adapted for this work, there are furnished two little objects known as "bite gauges." See illustra-

FIG. 37.—Getting the protruded bite. The separator between bites at heels, as recorded and maintained by the "bite gauges" is clearly shown.

tion No. 35. These are useful in maintaining the bites in proper relations, as will be shown. The bite gauges are set into the occlusal surface of the lower bite, as in illustration No. 36. When the upper bite is closed down onto them the conical portion pierces the upper bite as shown in the same illustration.

Both bites are now placed in the patient's mouth. Before closing the jaws together, the patient is instructed to thrust the lower jaw forward

about 1/8 of an inch. In this position the lower jaw is moved upward until the bites are in contact anteriorly. In the majority of cases there will be a greater or less separation of the bites in the posterior section, as may be seen by careful inspection of illustration No. 37.

Here the advantages of the conical upward projections of the bite gauges are manifest. They preserve the separation between the bites posteriorly and help retain the bites in the proper forward and back relations.

As soon as the bites come together anteriorly, staples like the one visible in illustration No. 38 are inserted in the bites as there shown. A better form of staple can be made by twisting two pieces of wire tightly together and then turning all four points over, forming a pointed staple. It is sometimes advantageous to melt a little of the wax of the bites about the staples, making their retention more secure, and preventing any changes in the relative portions of the bites. The bites thus fastened together are taken from the mouth.

That is all there is to that part of determining the condyle path which is done in the mouth. The rest is done in the articulator.

A SHORT CUT

When it is desired to dismiss the patient as soon as possible, and to have only one appointment previous to trying the dentures in, a shorter method may be used, producing the same results. It is, however, slightly more confusing until one is accustomed to the work.

To use the shorter method, establish the "occlusal plane" as usual, and trim the bites vertically to proper heights. Remove the lower bite from the mouth and put the bite gauges in place. Place the lower bite carrying the bite gauges, in the mouth and have the patient protrude the lower jaw and bite as described above. With the bites in this position any desired marks may be made across both bites to register their relations; but they should not be fastened together.

The lower bite may be now taken from the mouth, and the bite gauges removed. The lower bite is then replaced in the mouth, the jaws are closed together with the lower properly retruded, and marks are made across both to show their relations. These marks should not interfere with those made in the position of the protruded bite.

Both bites are removed from the mouth and fastened together; the mouth piece of the face bow is inserted as before described,* and the models are mounted on the articulator by means of the face bow and bites.

* See THE DENTAL DIGEST for April, 1910.

When mounting on the articulator is complete, the bites are carefully separated, the bite gauges are replaced in the spots from which they were taken, the spring of the articulator is detached from the lower portion, and the lower bite and model are protruded until the bite

FIG. 38.—Side view of bites following taking of protruded bite.

gauges fit into the depressions in the upper bite which they made when both bites were in the mouth. This brings the work up to its present stage, but shortens somewhat the length of time the patient must remain in the office.

(*The next article in this series is expected to appear in the July issue*)

SOME CASES IN PRACTICE. . . . Quite the *worst* mouth I ever saw in a practice almost cosmopolitan in its character, and covering a period of forty years, was where the patient, a prominent lady, had worn a platinum plate made by a distinguished New York City dentist. The mouth membrane (palatine) of the lady was horribly corrugated and flabby. Of course, the abnormal condition of the mouth was not caused by the chemical action of the platinum, but possibly, and probably, by a misfitting denture. I really know no other reason to account for the dreadful condition of this patient's mouth, as there was positively no history of *blood taint whatsoever,* so that I am compelled to charge the oral conditions to mechanical causes exclusively—that is, to a misfitting plate.—E. H. BOWNE, D.D.S., *Dental Brief* (From *Western Dental Journal*).

THE RELATION OF CONDITIONS OF THE ORAL CAVITY TO THE HEALTH AND MORALS OF SCHOOL CHILDREN

By W. A. Evans, M.D., Commissioner of Health, Chicago, Ill.

(*Continued from the May Number*)

This second instalment of Dr. Evans's paper contains several things worthy of our most careful consideration. The first is the groundwork for considering our profession a specialty of medicine. No dentist can read understandingly what follows and not see that dentistry is as closely interwoven with the general health of the body as is the practice of medicine itself.

Second. Here is such a diagram of what our service should be as must impress itself on every thoughtful mind. We are Caretakers of the Mouth. Guardians of the Entrance Way. Preventers, in large measure, of Infections. Our duty will require its regular routine of repair. But it is larger than that. It is to keep the mouth in health and in condition to function properly.

Third. Just as the words of a friend who outlines a possibility to which we have not lived up, may become a real criticism of our conduct, so these words become a criticism of much of our professional conduct. How many of us have taken such view of the general health of our patients as is suggested here?

How often have we sought to maintain or restore the proper functioning power of the mouth? In how many cases do we keep the teeth scrupulously clean lest any focus of infection should lodge among the uncleanness?

Let us get the viewpoint of this man who labors with great problems. It will give us a nobler view of our own responsibilities and actions. And when we live up to our responsibilities these problems will become smaller.—Editor.

We have long appreciated the importance of certain orifices of the body in relation to infections. It has been easy to see this relation with regard to certain acute infections; it is more difficult to see it with regard to infections that are more chronic in character. We are coming to understand that the eruption of scarlet fever is secondary, that the important part of scarlet fever is a focus of infection located either in the nose, in the mouth or in the nasal pharynx, and that the poisons are circulating through the body. Thus the poisons are but giving expression to themselves in the eruption that has been held heretofore to be of such consequence.

The importance of diphtheria I am sure is fully understood, but the enlargements of the glands of the neck, of the nose, of the tonsils, of the pharynx are not so clearly understood. They are due to absorption somewhere in the nose or within the mouth; *and a very large percentage of those absorptions take place through cavities in the teeth or down the sides of unclean teeth.* Not only that, but we are constantly confronted with instances like this:—a child has been in a diphtheria

hospital, and has remained there until it seemed safe for the child to go home. Then the child has gone home, and there has followed an infection with diphtheria in that home. What is the logical explanation? The logical explanation is that in some hidden recess, somewhere in that child, there was a focus of hidden bacteria; and in all human probability a large percentage, if not an overshadowing percentage, of those infections are either in the tooth cavities or somewhere in close connection with the tooth cavities.

The importance of these things possibly you do not understand. I heard Judge Mack not long ago say that from his several years' experience on the Juvenile Court bench in the City of Chicago he had come to understand that *there was a close and necessary relation between the child with enlarged glands, the mouth-breathing child, and the criminal. That this is of consequence, I am sure you understand!* Not only that, there is the child pale, weak and wan, working unsatisfactorily to himself and unsatisfactorily to his employer, rendering improper returns for its immediate effort, and building up disaster not only for that community of men, not only for the family connected with that child, but in some measure for the entire community.

Then there is another phase of the question, and that is this—to properly care for the child's teeth represents a proper regard for esthetic considerations. Let me say to you this cannot be neglected in any stratum of society. You mothers cannot afford to have your children understand that in any particular they are not on a par with their fellows. You cannot afford to have your children grow up with mouths that are awry, with jaws undeveloped, constantly confronted with the fact that there is something wrong in their facial structure, in their personal appearance. There is something that is to be gained from the pride of a parent, from the pride of opinion and from personal pride of any sort or character. There are occasions under which pride of opinion or pride of personality works harm, but take it in the large and weigh the harm it does and the good it does, and every community is the better for having every single man of that community a self-respecting man.

And now what is the value of health to a community? Dr. Ebersole told you awhile ago of the enormous losses in this country from fire. There is no country in the world where the fire loss is as great as it is in the United States. There is no country in the world where the expense of maintenance of fire protection is as great as it is in the United States. There is no country in the world where the police loss, or loss by crime, is as great as it is in the United States, and there is no country in the world where the police expenditure is as great as it is

here. But these statements do not hold true of health work. There is no country in the world where the death rate is as low as it is in the United States. There is no country in the world where the expenditure for preservation of health is as small as it is in the United States. These are not things that have come about automatically; there are many factors that have worked to bring them about. In the first place, our people are intelligent, prosperous and self-respecting. Our standards of living are high. Our standards of cleanliness are high. Our standards of right are high. And all of these things make for a low death rate. Our standard of intelligence is high. Our standard of personal control is high. And these make for a low death rate. But probably the factor, that has made for a low death rate more than any other, is the fact that we are a picked people. Here are found the men and the women that are the cream of all lands of all the earth! The farm boy of Indiana and Ohio has been drawn from the farm to the cities, and in consequence the standard of health in our great centers of civilization, our cities, has been maintained. We have drawn the best of Italy, the best of Poland, the best of Germany, the best of Ireland, the best of every European country; but not only that—our expanse has been great. It has been possible for every man to separate himself from every other man by great expanse of sunlight and air, and the things that man has neglected to do for himself, God, in His goodness, has done for him. But now our country is becoming filled, and no longer is it possible for us to prevent congestion of population. And that health we are to have in the future, will be what we earn for ourselves by reason of right living. The drifting that has marked government in the years that are gone, must be supplanted in the years to come by community planning, by governmental planning, by civilization planning, and by planning of the individual. It will result that we shall have so much of health, so much of peace and security, of prosperity, of opportunity, as we earn by right living; no less and no more! I believe in a God, but I believe in a God of justice. I believe in a God that gives a man that which he deserves, and the way to have health is by living so that you shall earn or deserve health!

We are confronted in this country by possibilities that are great, and if we properly take advantage of those possibilities it will mean a continuance of national prosperity, but if we do not properly avail ourselves of those opportunities in the large there is no automatic machinery that of itself, and in spite of us, will guarantee continued prosperity and continued opportunity to our land. If we are to have it, we must earn it! There is no way we can have it without earning it.

(The final instalment of this address is expected to appear in July)

HOW TO FILL TEETH WITH GOLD

By J. V. Conzett, D.D.S., Superintendent of Practitioners' Course in Operative Dentistry, Drake University, College of Dentistry, Dubuque, Ia.

While density is very essential, it is not the most important qualification that a filling must possess, for a filling may have the greatest density possible to a gold filling and yet be a failure. The most important attribute that any filling can have, indeed the one prime essential, is adaptation. A filling that is perfectly adapted to the cavity walls is more likely to save the tooth, no matter how far short it may fall in density, than a filling that has a perfect density, perfect contour, and all of the other attributes of a perfect filling and lacks the one prime essential adaptation. The reason that most operators prefer the plastics to gold is because with them they can more easily obtain the necessary adaptation that is essential to tooth salvation. For, much as I like gold, it must be confessed that it is not an easy material to adapt to the walls of a tooth. And yet when the laws governing its use are fully understood and complied with, its use is easy and withal, a delight, a truism that I have repeated so frequently that it must be burdensome to the reader. But I have no apologies to make for the repetition, for it is line upon line, precept upon precept, that all truth must be taught. If I can inculcate within the breasts of some of the members of our profession the love and admiration that I have for gold foil as a filling material, I shall think the labor attendant upon the preparation of these papers has not been in vain.

While gold is not an easy material to master, the very labor that is necessary to acquire a proficiency in its use will make of the man that so perseveres a master of any material for filling teeth. I verily believe that the technic acquired in the mastery of gold will give its possessor a digital dexterity in the handling of filling materials that no other exercise will impart.

We prepare our own cohesive pellets, as we do all forms of gold that we use, and we do it for several reasons. First, because we find that the gold so prepared is very much easier to work than any other gold with which we are familiar, and because we want to definitely know just how much gold we have under our plugger point at any moment of time, for we believe that definite methods produce definite results and we know from laboratory experiments just how many blows of a certain force upon a piece of gold of definite size it requires to produce a desired density. Therefore, if we had an uncertain quantity of gold under our plugger, we would not know, with the degree of definiteness that we

desire, the density that we were obtaining. All this may seem absurd to the man that has been filling teeth with the haphazard methods of the past. If so, by all means keep on doing as you have done in the past; but if you really want to succeed as an operative dentist, do not consider any pains that you may have to take as too great to obtain success. Genius is a capacity for hard work. The artist is the man who is master of detail; unless you are willing to pay the price that is demanded for such mastery, forever eschew any ambition to become a master operator. Why do I inject such moralizing into these articles? Because I have learned from sad experience that not one out of a dozen men is willing to follow out our instructions to the end. Many come, obtain a smattering, become self-satisfied and claim to follow our methods, but when we see the operations they are making we are compelled to blush for the men that claim to be our pupils.

We find that a piece of gold in a pellet the size of 1-64 of a sheet of gold requires 20 blows of the mallet, a 1-32 40 blows, a 1-16 80 blows, and a 1-8 160 blows of the hand mallet. We use the same gold for our cohesive and our non-cohesive work. That is, we use the No. 4 so-called soft gold, but of course in using it as cohesive gold we anneal it and when using it as non-cohesive gold it is used unannealed. The method of annealing is of the utmost importance, as a gold may be utterly ruined by a faulty or insufficient annealing. There are several methods of annealing, and good results may be obtained by either, if the method is properly carried out. Many operators use the open flame method and the splendid results that are obtained by these men are proof positive that excellent results are obtainable therewith. In using the open flame, however, there are some things that must be observed. A material must be used that will give a perfectly pure flame; that is, a flame that is a product of perfect combustion, for if there is not a perfect combustion there is danger of the deposition upon the surface of the gold of some of the products of the non-combustion which will effectually prevent the further cohesion of the gold; and not only that, but there are certain chemicals that, vaporizing in the flame of the lamp and being deposited upon the gold and becoming incorporated into the body of the filling, cause a future discoloration of the filling that is a source of vexation to the patient and chagrin to the dentist. One of the fruitful sources of such contamination is the habit some men have of wiping the match with which they light the lamp upon the wick, thereby depositing upon the wick some of the chemical of which the match is composed, to be vaporized and contaminate the gold. Alcohol is usually the substance used to obtain the flame used in annealing, and it cannot be improved upon; a pure alcohol is in my opinion the best mate-

rial to use for open flame annealing. Some operators use the Bunsen flame with the city gas, and if the gas is of good quality it is all right; but so much of the gas that is now furnished by our gas companies is of such poor quality that its use is attended with much danger of contamination to the gold. The best method of annealing is by an indirect heat, either a flame under a piece of mica or, better still, the electric annealer, which I consider the best method of annealing that we can possibly use. The method of annealing by using a flame under a piece of mica is open to no objections whatever, providing sufficient heat is used under the mica to thoroughly anneal the gold. This proviso is applicable to the electric annealer as well, for the gold that we use must have a sufficient amount of heat to thoroughly dissipate the ammonia with which its surface is protected. This can only be perfectly accomplished by a red heat; so a method of annealing which does not produce a red heat is insufficient.

The plugger point must not be large, neither should it be very much bent upon itself, for a plugger that deviates very much from a straight line does not deliver the full force of the blow of the mallet upon the gold. The angle of the plugger acts as a spring which takes up a greater or lesser amount of the force and it is lost to the filling. I once saw one of the members of one of my classes making a gold filling and he seemed to be obtaining a sufficient amount of condensation, but when I tested the filling I found that it was very far below the standard in specific gravity. I was for a while at a loss to know the reason, but when I examined his plugger I found that he was using an instrument that had a curve to it that made it resemble a sickle, and fully half of the force that he was using was being dissipated in the spring of his plugger. The size of the point is, obviously, of the greatest importance; for the force delivered upon the gold is directly proportional to the size of the plugger point. The larger the point the greater must be the mallet force. And it does not only directly decrease with the increase of the size of the point, but the force that is required increases according to the square of the diameter of the plugger point, so that it can be readily seen that a plugger of a very great size would require a blow so great, to properly condense the gold, that the patient could not possibly stand it.

In beginning a filling, a piece of annealed gold is carefully carried by the assistant plugger to the spot that has been determined as the best place to start the filling, and while it is being held in place by the assistant plugger, the plugger point is carefully condensing it to the walls of the cavity. In the adaptation of gold, instrumentation is of the utmost importance. The plugger point must be held at an angle of

about 45 degrees to the walls of the cavity, and the gold always carried towards the walls. That is, a piece of gold upon being inserted in the cavity should be first tacked down at or near the center of the cavity and then the plugger should be stepped in an orderly sequence of steps toward the wall of the cavity that you are aiming to condense against at that time, and the last blow that is delivered to that piece of gold should be the blow that forces it against the wall of the cavity. Under no circumstances should the plugger ever be stepped away from the margins of the cavity toward the center, as in so doing you are drawing the gold away from the margin, and having once done that it is almost, if not quite, impossible to again force the gold against the cavity margin, because we know that we temper gold by beating and therefore, after we have malleted the gold we have tempered it and made it stiff and intractable. Therefore let me again emphasize the importance of always driving, or flowing, the gold from the center of the cavity toward the margins or walls thereof. I have spoken repeatedly of the stepping of the plugger, and that is one of the important technical procedures in the successful filling of teeth. It means that the plugger point is advanced toward the desired margin about 3-4 of its diameter after each blow of the mallet; thus the gold under the plugger is all condensed, and is not condensed here and there, and leaving certain spots that the plugger has either not touched at all, or has passed over so hurriedly and inefficiently, that it is very inadequately condensed. Someone has very aptly likened the stepping of the plugger to the shingling of a house, each piece of gold as it is condensed overlaps its neighbor, so when the filling is completed all of the gold has been equally well condensed and the tooth is perfectly protected by a homogeneously condensed filling. In adapting gold to the walls of a tooth, each portion of the cavity must be perfectly accessible to the plugger point to obtain the best results; indeed it has been said with much truth that it is impossible to perfectly adapt gold to a wall or margin that is not perfectly accessible to the plugger point. That is, you cannot condense gold around a corner. A point that very frequently invites failure is the lingual margin of the incisor teeth. We find these failures so frequently because men fail to cut their cavities sufficiently far so that they can reach the margin from the lingual surface. First, be sure that your cavity has been sufficiently extended in this direction and then in finishing the placing of your foil direct your operations from the lingual surface. Do not make the mistake that is so frequently made at this time and place, of using a large foot plugger to condense the gold against this surface, for if you do you will have the chagrin of having the gold break off at this place when you are finishing the filling. This is caused by the

fact that the plugger point is so large that there is not sufficient force to the mallet blow to condense the filling sufficiently to cause it to perfectly cohere to the gold in the filling that has already been condensed. Rather use the same plugger that you have been using all the time, to condense the gold at this point, as well. Extreme care should be taken to see that the plugger point is always held at an angle of 45 degrees with the wall of the cavity that you are working toward, for there is no more prolific cause of failure than the wrong use of the plugger in this respect. Dr. Black has pointed out the fact that there is more frequently a failure in fillings in the mesial surfaces of the right incisors than in the mesial surfaces of the left incisors, due to the fact that as the operator is standing at the right side of the chair, he has direct access to the mesial surfaces of the left incisors and naturally uses the proper angle in condensing his gold; while in operating upon the other side he is at a disadvantage and unless he uses extreme care he fails to observe the proper angle in placing his gold and the consequence is that he fails to properly adapt it perfectly to the walls of the cavity, and he soon has a blue filling.

There are so many points to the successful manipulation of gold that can only be mastered by patient perseverance that I often become discouraged in attempting to tell men how to do it. The only way to succeed is to master the fundamental principles and then by continual practice become perfect in the technic, and never think that you have obtained the mastery until all the difficulties of manipulation fade away, and the working of gold foil becomes a pleasure and a delight.

In the next paper, which will conclude this series, we will take up the finishing of fillings.

NEED FOR MORE DENTISTS

THE present campaigns for public education on dental matters will create a demand for dental services which there are not nearly enough dentists to meet. It will take several years to train men properly. Long before they are ready, the demand will be great and insistent.

Every dentist should make himself a committee to lay the advantages of dentistry as a profession before young men of the right sort in his community. Many might be turned toward it. In three years they would begin to come out as graduate dentists. They will be needed even before that.

In setting forth the advantages of dentistry, let us select the young men with care. The best are none too good for our profession. Let us seek for them.—EDITOR.

OPENING OF THE NATIONAL CAMPAIGN ON ORAL HYGIENE, AT CLEVELAND MARCH 18, 1910

It is regrettable that the size of this magazine could not be enlarged to make room for all the good things in the following addresses. As our readers will desire to receive these reports before the meeting of the National Dental Association in July, it has been necessary to eliminate much that might well have appeared.

This movement for oral hygiene, concerning which the country is awakening as a strong man from sleep, is one of the most important on the dental horizon at the present time. It is so big that it is sure to inspire interest. It is so big also that its activities must be gone about intelligently and with much thought. Hasty or ill-advised action may do more harm than good.

The Cleveland plan seems to be wise and is expected to prove fruitful of good.—EDITOR.

OPENING ADDRESS

BY DR. G. C. ASHMUN, CLEVELAND, OHIO

. . . The oral or buccal cavity is the gateway of nutrition to all animal life and enters into questions of health and life as no other organ or part of the body can enter. And not only in respect to nutrition of the whole body does it hold its position of importance, but as an essential organ of speech and vocalization in all forms, it is the natural channel of expression for a large proportion of the emotions and conceptions of the brain. The perfect development then of all the structures which enter into the formation of the buccal cavity—the mouth—as well as the preservation of those structures and functions becomes of the highest importance.

And this gathering of hygienists is not merely one of dentists engaged in urging a special department of surgery, but a gathering of the broad-minded and large-hearted citizens who, by reason of their studies and observations, have come to some appreciation of the causes and extent of diseases and defects affecting the mouth, and the necessity for instruction to all classes and ages how such diseases and defects may best be prevented and relieved.

It is in furtherance of such aim that the Board of Education of this city school district has permitted and encouraged a demonstration of scientific efforts in this branch of hygiene as a further help in securing health and sound growth in the children attending. The Children of To-day—the Citizens of To-morrow. . . .

. . . The Board of Education of this city shares the hopefulness and confidence of the oral hygienists that a better care of the teeth and mouth of school children will lead to a higher average of bodily

functions, including a mental and moral progress apparent to parents and teachers. With such a result gained, the men assembled here to-day, who have so largely contributed to the initiation and plan of dental examinations in schools, will, I trust, receive both now and in future the praise such self-sacrificing, humanitarian work deserves. The object is worthy of the keen minds and the generous impulses of you, gentlemen, who propose this large service to humanity. (Applause.)

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ADDRESS OF WELCOME

By W. H. Elson, B.A., Superintendent of Schools, Cleveland, Ohio

. . . It goes without saying that this meeting is one of very great significance. We are learning more and more that the conditions, which make possible that a child may enjoy with profit the opportunities which the public schools offer, are equally important with that of providing the opportunity itself. We know full well that the child, who has a temporary communicable disease, may return to school in a few days, and, being a reasonably capable pupil, he may regain himself, but the pupil who has difficulties such as this inauguration proposes to remedy, returns to school only to be handicapped by his limitation, whatever it is. And so this work, which is to be inaugurated to-day, is one of very great significance for the children of our city, and one of great significance—I should say—for the country at large.

It is, I believe, the first attempt to cover the three important phases of this work. It combines, first, inspection of troubles relating to the mouth and teeth, and, for furnishing information to the teacher, to the school, and to the home. Those are half of the facts. It combines, with that inspection, a provision for clinical service to those who are unable to meet the expense of such treatment; and, thirdly, and perhaps best of all, if there is a best, is the lecture program, which proposes to place before young and old the preventatives for many of the troubles which are to be treated by this inspection and clinical service. So the combination of these three features, that of education or the diffusion of knowledge for the prevention of these troubles, that of medical inspection for the locating of specific and individual troubles, and that of the treatment of the children of the indigent, if we may call it such, represents a very complete installation of this work.

I am sure every teacher recognizes the great advantage that will come to children from freeing them of those limitations which handicap them in the progress of their education. So I say again that that kind

of work, which creates conditions which make it possible for children to profit by their schooling, is exceedingly important.

So we welcome this Convention here this afternoon, we welcome the progressive work which the Society of our own city and the National Society are inaugurating here. I think a word of compliment may be said very properly and very justly to our local Society, and a word may be said with reference to the general form of medical inspection which our progressive Board of Education is installing in this city. This then for our own city and for the children of our schools means very much indeed. I take great pleasure in welcoming all of you to this feast of good things this afternoon. (Applause). . . .

IMPORTANCE OF LECTURES IN THE SCHOOL BUILDING

By Mrs. Sarah E. Hyre, Chairman of Free Lectures and Social Center Work of the Board of Education, Cleveland, Ohio

This campaign for healthier conditions of the oral cavity of all children of growing age, which is being carried forward by the national, state and local dental societies not only in our own community but in other communities throughout the state and throughout the country, is one of education, and in so far as it is educational it deserves the support and thorough consideration of every school body.

The Cleveland Board of Education five years ago declared for the larger use of the school buildings for all educational purposes and to-day every manner of work along educational and helpful lines is being conducted in the school buildings under the direction of a committee in the Board of Education.

A few months ago the Dental Society came to the Board with a request, and that request was unanimously granted to the Society, to carry on a course of lectures in the public schools upon the importance and care of the teeth, these lectures to be given to parents and pupils and teachers. I feel warranted in saying that the general feeling prevailed in the Board that only the good of the great mass of public school children was involved in the request. (Applause).

This convention, the opening up of the clinics this morning and the general plan of work for the coming year in inspecting the mouths of all school children is to be followed by a course of lectures to be carried along in connection with the work. If these lectures are to be of the greatest benefit to the community, if they are to serve the purpose intended for the pupils and for our children, they must be so simple and so plain that in connection with the pictures, not only our upper grade children and the parents may readily understand, but that our

foreign population, who know very little English; may by associating the pictures and the simple language, be able to comprehend the truths that we have had presented here to us to-day.

I am sure that I need take none of your time to persuade you as to the value of these lectures in the school buildings. If the work of these organizations is to be effective, if the growing children of our city and other cities are to receive the benefit from this kind of a campaign of education, then we must have the co-operation, the intelligent co-operation of the parents. (Applause). We must have the co-operative support of the children themselves, and then last but not least we must have the moral, supervisory and sympathetic force of the teachers.

I am hopeful that this demonstration that is being carried on in Cleveland, will be so practical, so definite and so conclusive that it will serve as an argument to other communities and other official boards.

WHY WE NEED ORAL HYGIENE IN THE PUBLIC SCHOOLS

By J. W. Dowd, L.L.D., Ex-Superintendent of Schools, Toledo, O.

Mr. Chairman, Ladies and Gentlemen:

Health is the greatest possession in the world.

If there is anything the young people need to learn it is how to live, and there is no better way to teach them how to live and how to have healthy bodies than how to have good teeth. It is estimated that in this country only about 80 per cent. of people, or pupils, pay any attention to the care of their teeth. Suppose we have fifty pupils in a school-room—the exposed dental space in the mouth, not including the tongue, is about 22 to 24 square inches; suppose we have fifty pupils, 50 times 22—somewhere around there—it is something upward, if my arithmetic is good, of six or seven square feet. Now imagine that certain space—six or seven square feet—that we have claimed for teeth, covered with débris from decaying food, an unclean surface in every school of 2 feet x 3 feet. If it was on the floor Dr. Ashmun and Dr. Elson and the Health Officer would be notified, but they would not need to come because you would have already cleaned it up; but now it is where you can't get at it very well. The pupils themselves can get at it and that is one of the aims in this campaign, to have everybody take care of himself.

There are a few things your pupils should be taught, and that is why we are in this campaign. One of those things is, that a clean tooth never decays.

Another thing the children should learn is the importance of the

primary teeth. Why, do you know, there are people in this country who don't know how many primary teeth there are in the mouths of their children or how many should be there. Children and parents should be taught to keep their teeth clean, to keep them in place until they have done their work and fallen out, like ripe apples from the tree, to make room for the teeth waiting to take their places. They should be taught also that all the strength and symmetry of the jaw depends upon the retention of the primary teeth until they have done their work.

And another thing that the children should know—a thing that apparently parents don't know—is that the molar that comes into a child's mouth at the age of six years is a permanent tooth. It is mistaken by many people as a temporary tooth and allowed to decay. If it does, the whole jaw falls in irrevocably and complete occlusion of the teeth is forever destroyed.

Another thing a child should know is that there is no need of a child being irreparably handicapped by irregular and deformed teeth, by a mouth become so from mouth breathing. Every child should know there is a remedy for that. I take off my hat to those dentists who can take weakness and turn it into strength, who can take ugliness and turn it into a thing of beauty, who can take the shame and humiliation that a child having that sort of a face must possess, and turn it into a noble pride and dignity of character. Dr. Gulick, after investigating this matter, says that two defective teeth in the mouth of a child will retard him six months in the school year, and adenoids will keep a child back a year.

It is a matter of economy to the community to take care of its children. We have made a great stir in this country about pure food, and we have taken extra measures by law to see that the food is pure. The housekeeper takes pains about her dishes and all in connection with the culinary department; but, ladies and gentlemen, if it is a choice in any household between pure food and clean dishes and clean mouths, have the mouths of your families clean, for what avails it to have pure food, what avails it to have clean dishes, if it is going into mouths that are the breeding places of disease of all kinds!

If a man was down here on Euclid Avenue and should shoot from a dark window into the street he would be doing no more than the men and women are in this country who have points of diseased, decayed teeth in their mouths, filled with deleterious bacteria, and who are going around among their fellows breathing out, expectorating everywhere, giving all the diseases they have to be put into the dust and

breathed into the mouths of the people who traverse our streets! (Applause.) Longfellow says:

"There is a Reaper whose name is Death,
And, with his sickle keen,
He reaps the bearded grain at a breath
And the flowers that grow between.

* * * * * * *

"'Shall I have naught that is fair?' saith he;
'Have naught but the bearded grain?'"

I say no, a thousand times no; the flowers are not for the Harvest, but for Health, and I like to think I am in a campaign that will do much toward bringing about such conditions so that every child born into this world shall have a fair chance of living to his three score years and ten; and, if by reason of strength, they should be four score, then the ten added years will not be those of labor and sorrow, but will be delightful, mellow years of a green old age!

War, pestilence and famine have done their deadly work in the world.

I read in the paper this morning that twelve thousand people in Cleveland have tuberculosis and are marked for death. We will never conquer the great White Plague with the arm that ought to meet it until the children of this generation are armed with that knowledge—to know how to combat that dreadful disease. That is the campaign we are in! (Prolonged applause.)

Talk about conservation of public domain, get into quarrel about that; the most important public domain in this country, the most important possession of it is the boys and girls, and the movement you are inaugurating here to-day is of greater importance than any movement for the conservation of the physical resources of this country; for after all, what constitutes a state? It isn't cities, it isn't towns, it isn't broad units, it isn't farms, it isn't invention, but it is men—men that know their rights and, knowing, dare maintain! And so I like to fire the imagination of the audience with the idea of a world that is free from disease. Why, you know, the world is just getting to be a fit place to live in, and it is our business to make it a better place than it is to-day. Let us get to work at it. How can we do that? By beginning with the rising generation. Boys and girls properly checked in school, properly taught these methods of cleanliness, would mean clean homes, would mean clean cities, would mean a clean nation.

The text that is to be preached from all over this country and the text that will result in a better race for the future is this: "Keep the mouth with all diligence, for out of it are the issues of life." (Applause.)

OUR INTEREST IN THE WORK

By Henry C. Muckley, Assistant Superintendent of Schools, Cleveland, O.

We believe in the unity of man. Dr. King, of Oberlin, has made some splendid contributions to the idea of the roundness, the unity of man: "Not only is he a spiritual being, not only is he an intellectual being, but he is a physical being—I had almost said above all, but I will say below all, because down at the very bottom, the substratum of life, in some mysterious way lies this wonderful organism of ours."

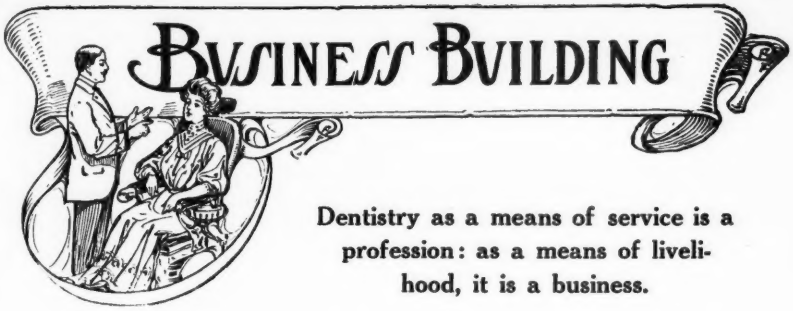
It is Robert Browning who analyzes man perhaps as no other poet has ever analyzed him, and in that splendid poem, "The Death in the Desert," in which he gives us scenes more or less imaginary, doubtless being the death of the great Apostle John, he makes him enunciate his great doctrines concerning man, wherein he says there are three souls, the first soul consisting of the bodily parts—the bones, muscles and tendons, and ligaments and nerves, the capillaries, all a wonderful mesh of tissue. He styles that soul the "what does"—a somewhat Brownonian phrase; but he calls that the "what does" the thing that manifests its activity, that acts upon nature and is reacted upon by her. But out of this "what does" there grows a second soul, conditioned downward upon this first one and growing upward out of it. This second soul is the "what knows," the soul namely that projects, that reasons, that analyzes, that soliloquizes; and then growing out of that second soul is the third one. As the second grew out of the first, so the third grows out of the second. And he calls that third soul the "what is," in recognition of its essential nature that somehow in that there is included the very substance and essence of human life. And so we have that mighty ladder, that tremendous progression, beginning down here with the bodily parts and moving upward into that region that we call the head and still upward into that third region that we call the spiritual, whose utter limit is not, for it surpasseth the infinite itself.

We leave to-day that third thing, we don't consider it, interesting as it is. We are not now considering that second thing as we ordinarily do in public school work, but we are turning our attention back upon the first thing, that "what does," and the public schools of Cleveland are interested in the education of the physical child. We have recognized the importance of the cleanliness of the outer body, so we have put auditoriums in our school buildings to some extent, and in all these things we have recognized the importance of this thing, which is the foundation. Without the foundation this second thing, the "what knows," could not grow out of the first, because it is upon the integ-

rity and health of this first thing that this second one is conditioned; and that is the explanation, Mr. Chairman and fellow teachers, of this movement, as I understand it. We are not here following a mere chimera of "*ignis fatuus*"—we are here dealing with actualities, here dealing with things that are real and things that will contribute not only to the particular thing sought, not only to the end that our children may have a thorough masticating apparatus and therefore may have a thorough assimilation and may have a thorough circulation and may have a thorough nutrition. I like to follow out that line in the direction of citizenship—without good sound teeth no mastication, without mastication no complete digestion, without digestion no thorough assimilation; without assimilation what becomes of the disposition? It becomes degraded, it becomes harsh and sour, and the end thereof is not sound government, is not nobility of life and character, but the end thereof is anarchy and all those things that men, who do not feel good within themselves, are trying to put upon the world without! (Applause.)

I want to express, so far as I have any thought in this matter, the entire sympathetic coöperation of the public schools of this city in this work. I believe it will contribute not simply to the health of the children but, as has been said, it is an economic measure which will contribute to the better thought, better life, better spirit, to the elevation of those flowers of human life which blossom out in spirituality and intellectuality. (Applause.) So I say that this movement to-day meets with our most hearty coöperation, and, as upon the particular subject on which I am to speak or have spoken, for I fancy my ten minutes are almost expired, "Our Interest in This Work," I say unequivocably our interest in this work has already existed. We need but to have these things pointed out to us, and we are ready to spring to the action that will lead to the bettering of the school life and condition of the children of our public schools. (Applause.)

THE TREATMENT OF INACCESSIBLE CANALS.—By the use of sodium dioxid this question was to me solved years ago. A treatment which can remove all putrescent matter from the tubuli of the dentin to their ends meets with no difficulty whatever in these ever-so-fine canals, which, while no instrument can trace or even find them, are still much larger than any dentinal tubuli can be, and so they are cleansed and sterilized too.—C. J. PETERS, *Items of Interest.*



Dentistry as a means of service is a profession: as a means of livelihood, it is a business.

THE FINANCIAL PART OF DENTAL PRACTICE*

By Wilfrid J. Holroyd, D.D.S., Pittsburg, Pa.

"Dentistry as a means of service is a profession: as a means of livelihood, it is a business."

This latter part we are to take up to-night. There is a tremendous truth in these words, there is no hypocrisy about them. It's coming down to rock bottom and realizing the plain truth of things.

I will endeavor to show by figures how dentistry stands compared to other ways and means of earning money.

Dentists are the poorest paid and hardest worked members of any profession.

In my estimation we rank as high professionally, as oculists and nose and throat specialists, although we do not conduct practice on as high a plane. The men in question put their specialty on a high plane and teach the public to come up to it, just as it is taught to come up to a good many other things.

Nose and throat specialists charge $5.00 for the first call, $2.00 each visit thereafter. These latter visits average from 7 to 10 minutes in length and one specialist I know treats, between 8 A. M. and 1 P. M., 44 patients which—for argument's sake—estimate at $2.00 per trip—means that he receives $88.00 for 5 hours work, $17.00 an hour (and this outside of hospital operations).

CAN WE COME ANYWHERE NEAR IT?

If any member of the profession can show me that it does not involve as much of nervous strain, or that we don't have to know as much of local anatomy, or display as much technique, or be as careful in treating the teeth and mouth, as in the specialties above mentioned, I'd like to have him.

How do these specialists command these prices? Are catarrh and

* Read before the W. D. Miller Dental Club of Pittsburg, Pa., December, 1909.

relative disorders more detrimental to the health than the absence of six or eight teeth? Yet the public pays the prevailing $2.00 price asked by these specialists for one treatment lasting ten minutes, and makes decided objection when a dentist charges $2.00 for an amalgam filling taking him *thirty* minutes to put in and lasting *ten* years.

I ask again, how do these specialists command the price? And I answer, "By education." They make the public realize that it is expert work. They have gotten together and fixed a scale of prices which they deem fair for their work. They stand by one another and do not cut prices, and the public pays, because it has been "educated" to pay.

A man that will pay $2.00 for a theatre ticket for one night and kick on $2.00 for an amalgam filling, needs "educating."

Take a well-known safety razor. The manufacturer in starting was undecided what to charge for his product, $1.00 or $5.00. He at last figured if he could sell it for $5.00 he could reach a better class of people and spend more for advertising.

You can surmise the cost of manufacture and also when we buy this man's razor how much we pay for the "education" this man is giving us by letting us know he is on the face of the earth and has razors to sell.

Manufacturers educate the masses by advertising and other means and the consumer has to pay for being told; and all this cost is proportioned on each and every article he buys.

These are a tremendous amount of "dead forces" which have to be paid for, around each article we buy.

This applies to dentistry also, but the average dentist does not seem to realize it.

The estimation of costs seem to have no place in the dentist's business economy, which is easily proved by noting the inconsistent prices we charge.

The merchants and manufacturers have reduced the estimating of costs to a science, else they could not exist. Competition is too great.

There are scores of things which the people as a mass would not buy unless educated thereto by the manufacturers.

All this entails extra cost, on top of what it takes to actually produce the article, and must be figured on.

Just imagine what the consumer has to pay extra on the article he buys when we consider how a department store is conducted.

Among the "dead forces" may be mentioned:

Delivery wagons and horses and delivering goods. Pittsburg department stores estimate this cost at 10c. for each article delivered.

Collectors:—You and I pay 2 per cent. on each article we buy to pay up for the person who is a "dead beat" and does not pay his bills.

Office force of all descriptions—cleaners, window-dressers, advertising and other factors too numerous to mention. All these are really non-producing factors, simply adjuncts to the money-making force, but their cost of up-keep has to be put on every article sold.

Now the average dentist knows all this without being told, but the strange part of it is, why does he not apply common business sense in determining costs?

Is he too lazy or doesn't he know how?

I'm afraid he doesn't know how. He maybe thinks because he is dealing with the human body that the matter is too complicated and that it is impossible to get to know, but he has only to pick up one issue of "System," edited by Mr. Shaw, of Chicago, to find that getting a system of costs for a dental practice is a-b-c compared with the complicated cost systems business men often have to think out. If he finds himself not equal to the task, he must acknowledge that he has not the brain calibre.

A man has no place in any business if he cannot estimate the cost of conducting it.

There are about 10 to 15 main items in the average dental practice that can be timed and cost of material taken. The dentist who does this will be well rewarded, and will wonder why he did not do it years ago.

After he has finished his investigations, he won't need anyone to persuade him to raise his prices. He will do it himself, quick.

If he finds it hard to "educate" his patients let him take heart by studying what the manufacturers have done along the line of women's clothes and hats, these last 12 years.

Is there anything more blatant to a thinking person, than the way the manufacturers have "educated" the gentler sex into buying better and more clothes?

They have taught them that instead of two seasons, there are four and clothes and hats for each season.

Women are paying $20.00 for hats and $35.00 to $50.00 for suits.

Twelve years ago $8.00 to $12.00 for hats was enough and good suits could be had from $25.00 to $35.00.

According to Dun's report the cost of living has gone up these last 10 years from 25 per cent. to 50 per cent.

We dentists are not getting any benefit of new conditions—dental prices are the same as they were 12 years ago.

One month ago I was closeted with a lawyer and he charged me $20.00 for 45 minutes consultation.

Physicians' fees for consultation are anywhere from $2.00 to $25.00. The public expect to pay these fees because if they ask anyone, about all

they are told is "that it is the regular thing" and that everyone pays these fees and it is expected of them if they wish consultation.

We dentists give advice from years of experience, for nothing. We have taught the people to expect it for nothing. The lawyer and physician have "educated" them differently and the masses go the way they are shown.

The physician charges for consultation, whether he gets the operation or not.

As regards prices. There has been nothing said in actual *figures,* (everything has been in words) and so little data to go on, and every dentist seems to be waiting for the other fellow to start, that it is up to some member of the profession to compile statistics and get an understandable base from which to start.

It is the only way to get results, by showing figures and not words.

The dental profession is so different from any other profession, that it is a class by itself and has to be treated as such and it is exceedingly difficult to get business help from outside sources.

Men away up on salesmanship and credits have been approached on the commercial side of dentistry and asked advice, but while posted on every branch of mercantile trades, flounder about hopelessly when it comes to answering questions on dentistry except in a general manner.

It is altogether foreign to them.

All an intelligent dentist can do is to apply the generalities and twist and turn them to suit the dental side of the case, and it is for the members themselves to work out things, which up to date, they have not done.

The majority of people seem to think that the following prices are prevalent:

50c., extraction.
$1.00, cleaning.
1.00, amalgam filling.
.50, cement.
5.00, gold crown.
5.00 to $10.00, rubber plates.
1.00 to $4.00, gold fillings.
5.00, Logan crown.
8.00, Richmond crown.
Treatments, no charge.

I may safely say that 75 per cent. of dentists charge the above prices. No wonder some of them hardly make their expenses and die poor.

There is hardly one dentist in a hundred who knows to the cent what it costs to conduct his business, or even bothers about it.

This brings us to one of the most crucial points. After we get the cost we have something from which to base prices. But to know what to charge, every business must know to the cent what it costs to run it.

Take figures to-day as they exist within the range of common knowledge. We are rated from a tax standpoint with our sister professions as below:

Ministers,	$500.00	These are the taxable figures agreed upon by the city and state and can be found in any court house.
Druggists,	600.00	
Dentists,	800.00	
Physicians,	800.00	
Lawyers,	800.00	

When you take into consideration that we members of the dental profession are at sea ourselves on the net amount of our practice, how can we expect the poor committee to be able to judge!

According to my investigations, the druggist makes as much, if not more, and the physician makes decidedly more than the dental practitioner.

Now, those dentists who have not investigated must abide by the figures of those who have.

I have taken my own practice for the last five years, estimated it to the cent, and find that to keep it up to date, constantly watching improvements, it takes 50 cents on the dollar to conduct the practice. This is verified by Dr. Clapp's investigations.

A dentist at the end of ten years should earn at least $4,000.00 *net,* $2,800.00 to live on and $1,200.00 to put by for a competence for old age.

It's in the business and can be gotten out of it by proper and right methods.

That makes at the end of 10 years a practice of $8,000.00 gross conceding that it takes 50 cents on the dollar to conduct the practice.

Now then, get the actual number of producing hours of one year, divide these working hours into gross receipts of one year and you have so much per hour.

Get to know how much average time each operation takes, multiply it by the price per hour; that will give how much ought to be charged for each item of work turned out.

Then the dentist will see where the inconsistencies come in, of which I spoke before.

Kindly look over the figures in small type and you will see how I get $6.00 per hour from the figures I have compiled. Probably what will strike you most forcibly is the number of working hours.

A man will stay in his office more than 1,330 hours, that's true; but he won't work at the chair more than the quoted number.

No man can work 8 to 10 hours a day steady at the chair and never leave it, without breaking down.

A working week of 44 hours is enough for any dentist, and enables him to have staying qualities. Out of this I have taken 9 hours for "broken appointments and educating."

Every dentist spends hours a week talking and "educating" his patients, and as he is giving them the benefit of his years of experience we must charge for consultation or charge the consumer.

The merchants have figured this out long ago. Did you ever stop and think how many people "look" at things and go from store to store before they buy? For every twenty people "looking" there is only one buying and the merchant has to have a corps of salesmen to attend to the people who don't buy.

When you realize that a grand piano costs the piano merchant $350.00 and sells for $700.00, you can imagine how much the consumer pays for the trouble the non-buyers gave the merchant.

The consumer pays in every branch of business or profession except dentistry, for the time consumed in "educating."

That is why I contend that the time spent at the chair in telling people what is best for them, seeing it is for their own good, ought to be paid for by them. But how it is to be paid is to be determined by the dentist; he either charges direct for consultation or figuring out how much time on the average he spends a week and then charging it to the consumer.

If you think a moment this is what the merchant does; he cannot charge for showing or consultation, therefore he charges all that upkeep to the ones that actually buy.

You find it forcibly demonstrated in the automobile industry. Just let your mind dwell a moment on the enormous expense of their advertisements, and chauffeurs taking out prospective customers and demonstrating machines. These men's wages have to be paid whether that particular customer buys or not, and all that expense has to be put on to the man who does actually buy.

The manufacturers cannot charge for demonstrating, but at the same time it costs money, and some one has to pay for it.

This consultation end of the dental profession constitutes a large "leak" and for the present I am charging it up to the "consumer."

This point is worth discussing, and is well worth the time spent in talking it over.

Tax rating		At the end of 10 years net.
Druggist	$600.00	$2,800.00—$3,500.00
Dentist	800.00	2,600.00— 3,200.00
Physicians	800.00	2,600.00— 3,200.00
Lawyers	1,000.00	2,800.00— 3,500.00

These are taxable figures agreed upon by the State.

Average age of graduation 25 years.

3 years course of 8 months—24 months—102 weeks at $12.00 per week $1,224.00

Estimating that the student can keep himself the other four months.

102 weeks' board and laundry at $5.00 per week	$610.00
102 " room " 2.00 " "	204.00
102 " expenses " 1.00 " "	102.00
Instruments, teeth, miscellaneous	250.00
Books	65.00
Tuition three years	500.00
	$2,955.00
Office equipments at the end of ten years	2,00.00
Total	$4,955.00
Approximately	$5,000.00

Office expenses per year, at the end of ten years—

Rent, gas, electricity, janitor service at $45.00 per month	$540.00
Wages—including office girl and dental laboratory fees	700.00
Miscellaneous expenses, magazines, 'phone, laundry, expressage, mantle, globes, etc	150.00
New office fixtures, renewing worn-out instruments and furniture	300.00
Material	425.00
Gold and solder	800.00
Advertisements, programs, tickets, church, lodges, and different societies	150.00
Total	$3,115,00

Annual Expenses.

Annual expenses	$3,115.00	
Depreciation 10 per cent	311.00	
On investment 10 per cent	500.00	
Should earn	2,800.00	
Competence	1,200.00	
Total	$7,926.00	say $8,000

Working Days.

365 days in a year
52 Sundays

313
5 holidays

308
21 days for vacation

287
21 days for dental meetings and sickness

266 actual working days divided by 7 equal 38 weeks per year.

Working Hours per Year.

8 hours per day
5½ days

44 hours per week
9 " " " lost appointments and educating

35 hours
38 weeks per year

1,330 working hours per year
1,330 hours into $8,000.00—$6.00 per hour

Estimate the time of the following pieces of work including every minute of each step:

1.—CROWN—Grinding tooth, fitting band and top grinding, polishing and setting.
2.—1 x 1 BRIDGE—Grinding tooth, fitting crown, bite, impression, pour, separate, mount, separate, choose teeth, set up, invest, solder, grind, polish, set in mouth.
3.—2 x 2 BRIDGE—White dummy facings (details same as No. 2).
4.—2 x 2 BRIDGE—All gold (details same as No. 2).
5.—GOLD INLAYS—Separating tooth (number of trips and time) prepare cavity, impression in wax, invest, casting, cooling, grinding, adjusting and cementing. You will find the time consumed in this is more than in a crown.
6.—PLATES—Impression, pouring, separating, preparing bite, and mounting on articulator, separating, choose teeth, setting up, wax up, investing, packing, vulcanizing (just estimate time in putting in and out vulcanizer) scraping, polishing, set in.
7.—PARTIALS—Details same as No. 6.
8.—ABSCESS TEETH—Time of examination, opening up, time of each successive treatment, closing and refilling tooth.
9.—REPAIR PLATES—Details same as No. 6 (special care should be given this time for various details as it is the worst paid piece of work).
10.—TAKING OLD AMALGAM fillings out, devitalizing, number of treatments, filling canals, replacing fillings.

(Be very careful of this time.)

11.—ESTIMATING repairing broken facings on cemented bridge in mouth, including burs, time in removal, cleaning and drilling out old cement, replacing bite and impression taken, pour, separate, etc. (as in No. 2).

NOTE:—It is without doubt, possible for these "steps" to be taken and averaged. If these "steps" were in any modern manufactured article, the manufacturer would have to know to the minute.

Regarding the $4,000.00 expense to conduct an $8,000.00 practice. The *items* making up the amount are merely incidental; expenses vary with different dentists and different localities, but every dentist will find, no matter where he is located, that his expenses will foot up in about the above mentioned proportion, 50 cents on the dollar.

I take exception to some prices per hour quoted in Brother Bill's Letters, one place $2.00 per hour, that would leave him $1.00 net. A plumber gets 75 cents per hour for jobbing work, and no responsibility.

Even at $6.00 per hour a man only makes a fair living and if he is a good dentist he " delivers the goods " to the patient.

The next step is to figure how long each operation takes and different pieces of work to do and charge prices according to the length of time required to do them.

This the club is doing and will afford material for another paper.

A REPLY TO "HOW CAN THIS DENTIST GET GOOD FEES WHEN HIS COMPETITORS GET LESS?"*

Mr. Editor: I have been reading THE DENTAL DIGEST for the past few months, and I want to say that I think it is doing more toward educating the members of the profession than it has ever done before.

I have never written an article for a magazine, in fact, that is out of my line, but after reading R. R. M.'s article in the March, 1910, issue I could not resist the temptation to at least tell him what I think about the condition of affairs in his city.

First, I want to say that after a man has spent three years of his good time, and at least $1,500.00, preparing himself for a profession (not saying anything about the preliminary preparation), $1,000.00 to fit up an office and $50.00 per month for running expenses, and then cannot make more than $1,500.00 a year out of it, my advice would be to get out of the profession and turn his attention to something else, or take a vacation for three months and spend it in a business college. If

* In March DENTAL DIGEST, p. 172.

he will just think over what he has been reading in the past four or five issues of THE DENTAL DIGEST, and will reread his own article, and then cannot figure out what is the matter with himself and surrounding conditions, then I want to say there is no hope for him. I don't think any dentist can put in gold fillings for $1.00, make crowns for $6.00, and plates for $5.00 and $10.00 and spend the time on the case that he should spend.

Here is my explanation of a remedy for his case. He is in a town of 5,000 inhabitants, with three other dentists, whom he says are just as good workmen, just as conscientious, just as good gentlemen, and I would add just as poor business men as he is. Now let them get together, agree as gentlemen to stand by their word, agree to give all patients their best services, and agree on minimum prices and let each go as far above in his individual practice as he thinks his services deserve. This will benefit not only themselves, but the people of their city and give them better satisfaction.

This city was in the same condition when I came here about six and a half years ago, and we have dentists here now, and have had this kind of an organization for the past two years, and conditions are fifty per cent. better than they were four years ago, both in regard to ourselves and the public. We are educating our patients to the needs of better dentistry and giving them better services. Having passed through the first two years, which I consider the worst feature of the case, it now ceases to be an experiment.

Here is a list of our prices:

Gold plates, $75.00.

Aluminum, $25.00.

Rubber, $15.00.

Gold fillings, $3.00 and up.

Amalgam, one filling, $1.50; two or more, $1.00 each.

Removing nerve and root filling, any of six anterior teeth, $2.00; bicuspids, $2.50; molars, $3.00. This does not include filling.

Crowns and dummies, porcelain or gold, each, $10.00.

Other services to correspond.

I will add in conclusion that we have an advertiser who puts in platinum (?) and gold (?) fillings for $1.00; makes beautiful (?) gold crowns for $4.00; whalebone (?) plates for $5.00 each, and to whom we pay no attention whatever. And this is something the smaller towns do not have to deal with.

Yours truly,

COLORADO.

UNTAPPED RESERVOIRS

By S. Edwin Corle, D.D.S., Philadelphia, Pa.

It is the impression of the majority of ethical dentists that the man who is making the most money in dentistry to-day, is the Dental Advertiser.

In a sense, this is true. There are some advertising dentists who conduct their big practices on a Wanamaker basis, who are making a barrel of money from the advertising offices.

But take the history of the great majority of this class of practitioners and you will find the most of them either go out of business or are put out by their creditors. The old adage that "it pays to advertise" seems to fall short in this particular instance. And to quote the publicity man of Battle Creek, "There's a reason."

Not one in twenty of the "painless dental parlor" men remain in business permanently—Why? Because they fake, they humbug, they play for suckers, they gold brick the public. For a time the glaring signs, the display space in newspapers, the sandwich man on the street, the free paper bags distributed to the grocers (advertisement on every bag), and dozens of other catch schemes, all bring in the patients. Each patient in turn is mulct for all he will stand (and sometimes more) and sent away to be a living and speaking advertisement for that dental parlor—in the wrong direction. Every patient must be a new patient, and the advertising alone is depended upon to bring them in. *And it brings them in.* One of these men recently summed up the story in these words: "Get 'em in—trim 'em—and let 'em go."

Will the ethical man stop for a few minutes and reflect upon the disgrace of this deplorable condition existing in our profession?

Reflect that we are a body of men, who, if properly organized, would have the power to crush these charlatans and make their names exist only on the pages of dental history.

It is a reflection upon our profession that we have no organization—that we have no official mouthpiece that is not subsidized by a supply house—we are weak, woefully weak as a body of professional men who know not the meaning of organization.

We have not the power to rid ourselves *and the public* of the scourge of charlatans that now infest our large cities.

The dental magazines (some of them) are crying for dental publicity, "Extend the Field," "Educate the Public," "Lecture the School Child," all of which is good, very good, but who's going to do this thing?

Where is the man brave enough to come out in the open and tell the public of the good gospel of dental hygiene—preach tooth righteousness, and sign his own name to his work?

That man exists only in rare numbers, he is few and far between. Why? Because if he were to publish in the press, his local paper, an advertisement or a reading notice telling the story of his life-work, he fears he will call upon himself the epithets of his professional brother who would ostracize him from their societies, who would point with the finger of scorn and cry "Advertiser."

The writer believes that the way to fight fire is with fire. If the advertising charlatan is successful for a time through advertising, his defeat can be brought about in the same way.

Let the ethical dentists organize to overcome this condition—let the societies aid and coöperate in a movement to show the public the difference between good and bad dentistry.

The advertising fakir is successful for a time because of the potent power of the press. But the advertising dentist who gives faithful service, guarantees his work and lives up to the guarantee, is financially successful beyond all expectations. The fakir fails, not because of the fault of publicity, but because he fakes. In these offices the man who makes the contracts is generally known as the "Grafter." This is a deplorable condition, and only exists because of the lack of activity on the part of the reputable practitioner.

The lack of activity is due to a lack of organization. The times are changing, though. The spirit of the times is showing itself in a few of the dental journals with sufficient courage to speak their convictions. When the way and means are presented let us embrace them. If a method of raising the standard of dental service and the knowledge of the public to appreciate good dentistry is forwarded by men with courage plus, let us coöperate and each contribute his mite toward a great educational movement for the Public—Dentalwise.

"There are untapped reservoirs" of inestimable value to the dental profession that can be reached by a properly conducted campaign of publicity for the benefit of the world at large, the fundamental principles of which must be honesty to the public, honesty to our patients and honesty to ourselves.

The field for our labors is here waiting for us to develop it. The possibilities of creating a greater demand for dentistry are enormous, and when we have realized the truth of this and see our science raised to the position it deserves, the cry of too many dentists and an overcrowded profession will be answered by the demand for more dentists and better dentists. The science of dental surgery and preventive den-

tistry will increase in its effectiveness in a ratio with the demand for better service and more of it. We are awakening, and the developments of the second decade of our twentieth century will make us fairly marvel at our present lethargy.

DISCOUNTS INCREASE PROFITS

While a good many dealers are rarely able to take advantage of the discounts offered by wholesalers for prompt remittance, it often happens that retailers have formulated the custom of taking the full time—30 to 60 days, or more—in which to pay these accounts, and at the same time have the money on account in their bank.

The advantage to be gained if they will pay up these invoices, either when the goods are shipped or at the end of ten days, and thus save a small percentage by doing so, is an old story. Yet the amount to be thus saved, while seemingly of no account, is only another way of increasing profits. Many retailers realize this, and always observe care in making prompt payments. Others also realize it, but deem it of too little importance and do not heed the advice given them relative to this practice.

The savings which would accrue on $5,000 worth of goods at 2 per cent. would be $100. Is this worth saving? Most retailers believe it is, and also look upon the matter as an "easer" to their peace of mind with these bills paid. They are then able to devote their energies toward increasing their balances, pushing collections or cutting down expenses in some departments of their store which may need it. This matter should receive earnest consideration, because it opens the way for increased earnings.—*The Keystone.*

Dr. Thaddeus P. Hyatt, 140 Remsen Street, Brooklyn, has prepared a series of lantern slides for an Oral Hygiene lecture to children or adults. He will be pleased to furnish slides at reasonable prices. Dr. Hyatt does this as an aid to professional activity, to those who desire to take up the work of lecturing, not as a revenue producer for himself.

DENTAL OFFICES AND DENTISTS, AS SEEN BY THE PUBLIC

(Continued from February Number)

It sometimes helps us to get a better view of ourselves and our surroundings, to see ourselves through another's eyes. Next best to seeing ourselves thus is to see others in that way.

Here are reports on a number of dentists and their offices as seen through the eyes of an intelligent observer.—EDITOR.

NUMBER TWENTY-ONE

Elevator and hall, light and clean.

Reception room is sunny, light, modern, very dusty; furniture in bad condition; leather on couch torn, with dirty leather cushion. Last week's newspaper, torn magazine and booklet of real estate company on table.

Operating room. Modern, light and dirty; soiled towels, dirty basin, chair shabby. Instruments in good condition.

Operator's appearance, good, manner courteous.

No office girl.

NUMBER TWENTY-TWO

Elevator and halls, clean, convenient.

Reception room, modern, light and sunny, dusty desk.

Operating room. Modern, in fair condition, if it were a little cleaner; instruments in good condition.

Operator's appearance, fair; manner, courteous but unconvincing.

Office attendant, sloppy—chewing gum.

NUMBER TWENTY-THREE

Elevator and halls, clean.

Reception room, light, sunny and clean.

Operating room. Modern; clean instruments in good condition.

Operator's appearance good; manner, courteous and convincing.

Office attendant was ladylike, clean and cheerful.

NUMBER TWENTY-FOUR

Elevator and halls, clean and convenient.

Reception room cheerful and clean.

Operating room. Modern; nothing elaborate but very clean and neat. Chair and instruments in good condition.

Operator's appearance good. Manner courteous.

Office attendant, ladylike, neat.

NUMBER TWENTY-FIVE

Elevator and halls, clean, convenient.

Reception room. Modern, clean.

Operating room. Chair modern and in good condition. Everything clean.

Appearance of operator very good; manner, courteous; inspires confidence in patients. Does no mechanical work.

Attendant ladylike, neat.

NUMBER TWENTY-SIX

Approach clean and light.

Reception room. Modern, clean.

Operating room. Modern, clean; could be more cheerful. Chair in good condition. Forceps and probe black.

Appearance of operator, good; manner courteous. Has some nervous trouble; shakes his head while working, which is very annoying. Would make a nervous patient ill.

No attendant.

NUMBER TWENTY-SEVEN

Elevator and halls, clean, light and convenient.

Reception room, cheerful and in good condition. Clean and modern.

Operating room is modern; chair and instruments well kept. Hangings to hide work table, shabby and very dirty; broom visible; mop and pail of water behind curtains; gas fixtures very dusty. All very dirty.

Operator's appearance, good; manner, courteous. A convincing talker.

Office girl, ladylike but not neat.

NUMBER TWENTY-EIGHT

Elevator and halls dirty.

Reception room in fairly good condition.

Operating room. Chair and instruments well kept. Window sills, basin, corners, gas fixtures, very dirty.

Operator's appearance fairly neat, clean clothes and linen; finger nails not clean. Manner, courteous.

No office girl.

NUMBER TWENTY-NINE

Halls and elevator clean and light.

Reception room, clean, comfortable, modern.

Operating room. Chair and instruments well kept; everything clean and modern.

Operator's appearance, good, and manner courteous.

Office girl neat, ladylike.

(The observer reported that this is the only dental office she has yet been in that meets what she thinks are the requirements of a properly kept office).

NUMBER THIRTY

Hall filthy.

Reception room dark, dusty, badly ventilated; furniture in bad condition. Not a magazine in the place. Not modern.

Operating room. Dusty; chair and instruments in good condition. Not a window open in the entire place. Looks neglected.

Operator's appearance good; manner polite but unconvincing.

No office girl.

Editor DENTAL DIGEST,
New York, N. Y.

Dear Sir:—

I just received the April DIGEST and as is my usual "stunt" I began to look for Brother Bill's Letters the first thing—I found instead a letter from "A wife who helped," which was very good in its way, but there was one thing omitted which worries me very much—I read of their diamond rings, automobiles, "honey-moon" to Europe, etc., but the thing you neglected to mention was, what "Doc" gave her for a bridal gift—the Standard Oil Company or the Pennsylvania Railroad?

Seriously, now, you are doing a grand work in the Business Building Department and we all appreciate it very much.

Yours truly,

ONE OF BILL'S BROTHERS.

"I appreciate the articles on 'Brother Bill'—they have stimulated me on to better work and better prices."

ONTARIO.

Business Building Literature of the Right Sort

BY THE EDITOR

IF any better business building literature for dentists and dentistry than ***"The Relation of Conditions of the Oral Cavity to the Health and Morals of School Children,"*** by W. A. Evans, M.D., Commissioner of Health, Chicago, has ever been printed, the writer has not seen it. The first part of that address* was printed in THE DENTAL DIGEST for May; the second part appears this month. The third and really finest part is expected to appear in July.

This address should be in the hands of every parent, every school teacher and every physician. It compels attention from the very first paragraph. It will grip every parent's heart before it is finished.

One of our readers saw the galley proofs of this address. He read it *all*. He said, immediately, "I want 500 copies of that to give to my patients, especially to parents."

Perhaps you would be glad to have it for the same purpose. We will furnish it printed in the form of a little book, envelope size for convenient mailing, for $3.00 per hundred copies,† express paid, in the United States, provided orders for 5,000 copies are received, to make it possible to produce them at this price. The money must accompany the order.

If you want anywhere from fifty copies up, send your orders to

THE DENTAL DIGEST

47-65 West 42nd Street - - NEW YORK

* Delivered at the opening of the National Campaign for Oral Hygiene and published also by the *Dental Brief* and the *Dental Summary*.

† Canadian orders must include seventy cents a hundred copies to pay the duty.

HOW SHALL I EQUIP MY OFFICE?

Modest Prizes for Answers

Every little while the Editor receives a letter something like this: "I believe it would pay me to refurnish my operating room, but I don't know just how to do it. I want to make a good impression and to get the maximum of efficiency. I don't know what to get and what to leave out. Please tell me."

A good many dentists know just what an operating room should contain; many would be glad to know.

Let those who know send The Editor of The Dental Digest a list of just what an operating room should contain. Mention each article and the name of the maker if you care to.

Some of the most convenient items in equipment are "home made," the product of the ingenuity of the user. Do not hesitate to mention such articles. If successful, they are subjects for pride. Send photos also if possible. They will be returned.

Much of the benefit of an office comes from a wise arrangement of the equipment. If you have any special arrangement that saves steps, or time, or labor, let us hear about it. We all want to keep our vitality as long as possible.

To the writer of each article accepted for publication, The Dental Digest will send, postpaid, a copy of C. N. Johnson's "Success in Dental Practice" or W. H. de Ford's "Lectures on General Anesthetics in Dentistry." State your preference.

HELP US DETERMINE COSTS

On pages 378 and 379 of this number, Dr. Holroyd outlines eleven standard operations in dental practice. For the common good—your own good and the good of 11,000 other readers—will you help determine the time each of these operations takes? Take any one or more of the operations, and keep account of every minute of time it requires. Write me a description of the case and your report of the time required.

These reports will be published with your name signed or withheld, as you request. They will be among the most valuable of the contributions to practical dental business literature.

If every reader will do only one operation under these conditions, we shall have 11,000 reports, and will learn more about actually conducting a practice for profit, than we have learned in ten years past.

Do your share and report.—Editor.

ATTRACTIONS AT DENVER, JULY 19 TO 22, 1910

THE National Dental Association, the National Association of Dental Examiners, the National Association of Dental Faculties, the American Society of Orthodontists, the Delta Sigma Delta Fraternity and the Psi Omega Dental Fraternity, all meet at Denver during July.

Many who come to this meeting will probably do so for the sake of a vacation. A great opportunity to see some of the attractions in the state of Colorado is offered, to those who attend.

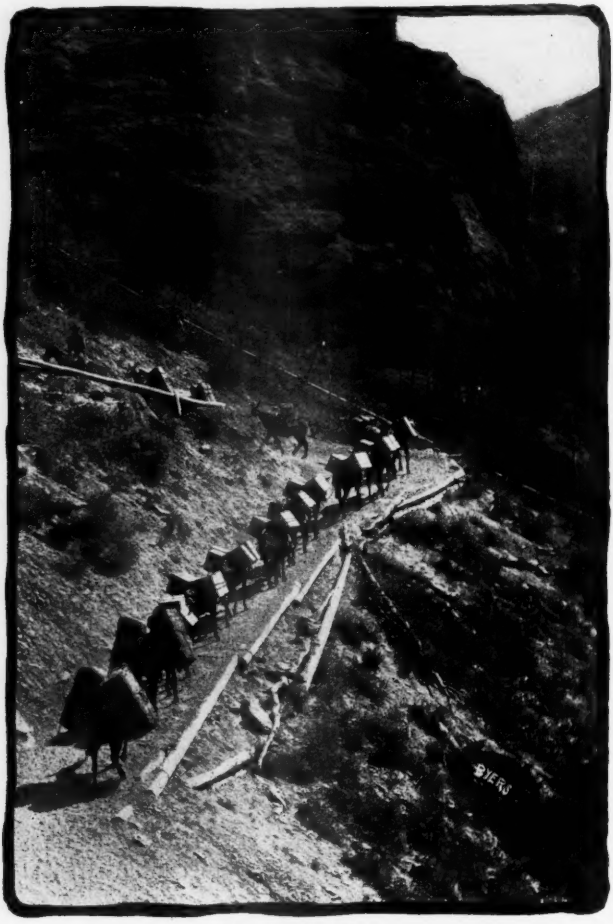
At Cimmaron the railroad emerges by a side cañon, while the river plunges into still deeper and darker depths, which until recently have baffled all attempts at exploration. Not until long after the idea of the Gunnison Tunnel was conceived did government engineers finally succeed in making the daring passage of the cañon and determining the feasibility of the project. This wonderful tunnel, constructed by the Government, and finally completed last fall, passes for six miles under the mountain, diverting water from the river to reclaim 150,000 acres of desert land in the Uncompaghre Valley.

The Gunnison River is regarded by the most knowing disciples of Izaak Walton, as the best trout stream in Colorado, if not the best in the world, producing the largest and gamiest fish and the biggest catches. It is before entering the cañon at Sapinero that the river, winding through beautiful valleys and meadows for about fifty miles, presents to the fisherman a veritable paradise.

The Black Cañon is about twelve hours' ride from Denver, and is included in Colorado's classic trip known as "Around the Circle." The trip starts at Denver, traverses Colorado westward, crossing the Continental Divide of the Rockies; almost at the western line of the state it turns southward toward New Mexico, at the New Mexico line turns east, and after skirting that state, and finally dipping into it, turns northward for Denver again. This trip, which can be taken in either direction, covers 1,000 miles of the most distinctive Rocky Mountain scenery, and includes such other famous places as, Pike's Peak, Manitou and The Garden of the Gods, The Royal Gorge, The Grand Cañon of the Arkansas, Marshall Pass, Ouray and the stage-line, The Cañon of the Las Animas, Ophir Loop, Lizard Head Pass, Mesa Verde National Park, where the Government has protected the prehistoric ruins of the Cliff Dwellers, Toltec Gorge, San Luis Valley, La Veta Pass and the Ute and Apache Indian Reservations.

Side-trips may be made to the wonderful Natural Bridges of Southeastern Utah, the Pueblo of Taos, Pagosa Springs, and the Wheeler National Park near Wagon Wheel Gap on the Rio Grande del Norte.

As a scenic trip it requires from four to six days or as much longer as desired. The route passes through cañons, over mountain ranges,



Mountain Pack Train.

in the shadow of snow-capped peaks, and offers every inducement to the lover of nature, and the sportsman, as well as affording rest to the weary.

For detailed information, estimates, etc., write to

Dr. H. F. Hoffman,
Chairman Publicity Committee, N.D.A.,
612 California Bldg., Denver, Colo.

(Published by courtesy of the Denver & Rio Grande Railroad.)

FURTHER STUDY OF SOMNOFORM ANAESTHESIA AND SUMMARY WITH TABULATION OF RECORDS OF ONE HUNDRED AND TEN CASES*

By Albert L. Midgley, D.M.D., Providence, R. I.

* * * * * * *

Having presented a paper on this subject to you a year ago, it would be infringing on your time to enter into a discussion of the chemical and physical properties of somnoform; of the methods of administration or of the degrees of anæsthesia. In regard to the degrees of somnoform anæsthesia, it is sufficient to say that we recognize three stages, as we do in most other anæsthetics.

Sex, Condition, Temperament, Etc.

SEX AND AGE

Number of Male Patients....	23 or 20.9	per cent.
Number of Female Patients..	87 or 79.1	" "
Oldest Male	79	years
Youngest Male	8	"
Oldest Female	56	"
Youngest Female	10	"
Averaging age of 106 patients	28.8	"

Of 106 patients seven were over fifty years of age.

In these seven cases the after condition was good with no unpleasant symptoms.

In comparing the sexes we find no noteworthy differences, either in the amount necessary; clinical and physiological actions; time required; length of narcosis or speed or type of recovery. Unpleasant after-effects were distributed practically equally between the two sexes.

Like other anæsthetics, mental and physical condition, tempera-

* This digest offers only parts of a valuable paper. In the table reproduced herewith the columns of the original table headed "Case Number," "Record Book Number," "Age," "Sex," and the columns dealing with the presence or absence of the corneal reflex are omitted for lack of space on the page. Read before The Academy of Dental Science, Boston, Jan. 5, 1910.

ment, habits, etc., exert their influences on clinical and physiological actions, quantity used, induction, narcosis, recovery and after effects.

SOMNOFORM ANAESTHESIA RECORDS 1908-09

General Physical Condition.	Method of Administration.	Degree of Anaesthesia.	Quantity.	Induction.	Narcosis.	Pulse. Before.	Pulse. During.	Pulse. After.	Respiration. Before.	Respiration. During.	Respiration. After.	After Condition.	After Effects.
----------	Som. alone	Deep complete	3 cc	56"	1'	84	84	102	21	38	20	Very good	No unpleasant symptoms.
----------	" "	" "	3 cc	1'	1' 10"	86	94	90	18	24	18	Very good	No unpleasant after effects.
Good	" "	" "	3 cc	1'	1' 25"	108	108	90	20	24	22	----------	Slight Nausea and dizziness.
----------	" "	Very light complete	3 cc	1' 15"	40"	132	80	96	24	24	17	----------	Faulty administration.
Good	" "	Deep complete	3 cc	30"	1'	81	96	81	30	25	21	Very good	No unpleasant after effects.
Good	" "	" "	3 cc	30"	50"	81	94	66	31	20	21	Very good	
Good	" "	" "	3 cc	43"	1' 5"	90	96	96	24	"	19	Good	Slightly dizzy.
----------	" "	" "	3 cc	45"	1'	88	94	76	24	22	24	----------	Slight nausea, extremities numb.
----------	" "	" "	3 cc	45"	50"	130	140	96	24	24	20	----------	Slight headache.
----------	" "	" "	3 cc	50"	58"	84	112	93	20	20	20	Very good	Slight dizziness.
----------	" "	Uncertain	Faulty —6 cc	-----	48"	76	134	80	20	24	24	----------	No unpleasant after effects.
----------	" "	"	3 cc	45"	50"	83	96	80	24	26	24	----------	Involuntary micturition. Slight nausea and numbness of extremities.
----------	" "	Deep complete	3 cc	1' 34"	32"	108	128	108	32	42	32	----------	No unpleasant after effects.
----------	" "	" "	3 cc	50"	55"	84	84	80	20	24	24	Good	Much dizziness and numbness of extremeties.
18 months Pul. Tubere.	" "	" "	3 cc	1' 7"	58"	120	120	108	20	30	24	Good	Slight headach and dizziness.
----------	" "	" "	3 cc	1' 10"	-----	68	88	92	24	18	20	Very good	No unpleasant after effects.
----------	" "	Uncertain	3 cc	-----	53"	84	---	84	24	18	24	Very good	Slight numbness of lower extremities.
----------	" "	Light complete	3 cc	56"	22"	112	88	104	24	16	24	Very good	No unpleasant after effects.
----------	" "	Deep complete	3 cc	1' 3"	1'	68	108	84	24	---	20	Good	Slight headache.
----------	" "	" "	Faulty 3 cc	1' 5"	45"	84	80	62	24	20	30	Fair	Involuntary micturition. Weak generally.
----------	" "	Very deep complete	3 cc	1' 10"	1' 10"	104	97	89	24	42	26	Good	Slight numbness of extremities.
----------	" "	" "	3 cc	-----	-----	106	60	90	24	20	24	Very good	No unpleasant after effects.
----------	" "	" "	3 cc	1' 7"	45"	80	106	76	20	20	20	Good	Slight headache.
Very good	" "	Light complete	3 cc	1' 10"	40"	84	76	84	18	22	18	Very good	Case 86, same patient. No unpleasant after effects.
----------	" "	Deep complete	3 cc	1' 30"	1'	80	84	62	19	36	24	Poor	Weak pulse, severe headache, vomiting, numbness of extremities, weak generally, no stimulation.
----------	" "	" "	3 cc	1'	1' 10"	80	74	72	17	22	20	Very good	Case 84, same patient. No unpleasant after effects.
Good	" "	" "	3 cc	1'	45"	96	120	102	26	33	28	Very good	No unpleasant after effects.
283 mths. Pregnant	" "	Very light	Faulty 6 cc	1' 45"	40"	108	108	72	24	30	24	Fair	Severe pain in stomach, slight headache.
----------	" "	Deep complete	Faulty 6 cc	2'	1' 5"	90	108	81	24	33	24	Good	Practically no unpleasant symptoms.
----------	" "	" "	3 cc	40"	1' 20"	80	136	84	28	38	27	Very good	No unpleasant after effects.
----------	" "	" "	6 cc	1' 56"	1' 20"	72	76	60	18	26	17	Very good	No unpleasant after effects.
Very good	" "	" "	3 cc	1' 25"	1' 10"	120	130	108	18	24	14	Poor	Slight headache, nausea, vomiting, numbness of extremities.
----------	" "	" "	6 cc	2' 10"	1'	118	124	106	30	40	28	Very good	Slight dizziness.
----------	" "	" "	Faulty 6 cc	1' 55"	1' 45"	90	120	68	20	26	21	Poor	Slight headache, nausea, vomiting, very dizzy, extremities numb.
Good	" "	" "	3 cc	1' 20"	55"	88	86	68	21	24	18	Very good	No unpleasant after effects.
----------	" "	" "	Faulty 6 cc	-----	-----	120	100	124	26	33	28	Very good	No unpleasant after effects.
----------	" "	" "	3 cc	1' 32"	50"	82	92	92	20	18	22	Very good	No unpleasant after effects.
----------	" "	" "	3 cc	1' 4"	50"	70	104	90	18	26	22	Fair	Nauseated, weak in extremities.
----------	" "	" "	Faulty 6 cc	1' 40"	58"	76	106	72	22	21	20	Very good	No unpleasant after effects.
----------	" "	" "	Faulty 6 cc	55"	1' 40"	72	84	72	20	24	22	Good	Slight headache only.
----------	" "	" "	3 cc	1' 12"	1' 10"	106	106	84	22	30	20	Very good	No unpleasant after effects.
Very good	" "	" "	3 cc	45"	1' 12"	84	88	82	24	30	24	Fair	Slight headache, numbness of extremities, weak generally.
Good	" "	Light complete	3 cc	1' 17"	30"	96	104	91	22	30	22	Good	No unpleasant after effects.
----------	" "	Deep complete	3 cc	1' 15"	1' 10"	84	95	82	17	19	16	Good	Slight dizziness.
----------	" "	" "	3 cc	1' 3"	1'	132	169	102	21	28	22	Good	Practically no unpleasant symptoms.
----------	" "	" "	3 cc	1' 5"	-----	80	96	83	18	26	16	Very good	No unpleasant after effects.
----------	" "	" "	3 cc	1' 5"	50"	90	84	75	30	30	24	Very good	No unpleasant after effects.
----------	" "	" "	3 cc	50"	1' 45"	90	96	106	24	30	21	Poor	Nausea, vomiting, dizziness, numbness of extremities.
----------	" "	" "	3 cc	1' 12"	1' 18"	108	96	106	30	20	19	Very good	No unpleasant symptoms.
----------	" "	Light complete	3 cc	57"	40"	72	92	80	21	40	18	Good	Numbness of extremities.

Generally speaking, with alcoholics and the hysterical type of cases, somnoform anæsthesia is not induced as quickly and pleasantly, nor is

the narcosis as lengthy and the after-condition as good as in patients of good physical condition and of a sanguine temperament without fear, bad habits or other depressing contributory causes. In this latter class of cases, also, the recovery is more speedy, with less of a tendency to depression.

Age is always a factor to be considered in the administration of any anæsthetic, but we may administer somnoform with reasonable confidence to patients with no organic disease and with fear allayed.

* * * * * * *

QUANTITY

In four cases it was necessary to use 6 c. c. to induce profound anæsthesia. In all others, 3 c. c. was used, with the exception of ten cases, in which the administration was faulty.

Realizing the possible dangers of a large dosage and of continuous anæsthesia, and assuming that no combination of drugs is safer than its most dangerous component—60 per cent. of somnoform is ethel chloride and 5 per cent. of somnoform is ethyl bromide,—safety demanded that we exercise extreme caution. Therefore, no attempt was made to continue the anæsthesia and keep the patient under it longer than the time afforded by a 3 c. c. capsule. In a few well-selected cases another 3 c. c. vial was given after complete recovery, with the hemorrhage checked. In these patients no unfavorable symptoms were noted.

NOTE—Since this paper was read the per cent. of ingredients of somnoform has been changed and at the present time it is composed of ethyl chloride 83 per cent., methyl chloride 16 per cent., and ethyl bromide 1 per cent. Observations and deductions noted in this paper were made under the old formula, which was ethyl chloride 60 per cent., methyl chloride 35 per cent., and ethyl bromide 5 per cent.

It is best not to re-administer immediately, but to perform further operating on another date unless the case positively demands immediate attention. In a given case, if the operator could foresee that a re-administration might be necessary, his better judgment would advise him to eliminate somnoform entirely and use ether or nitrous oxide with re-administrations, or continuous nitrous oxide anæsthesia with nitrous oxide and air or nitrous oxide and oxygen.

* * * * * * *

In most cases 3 c. c. was found to induce profound anæsthesia and an operating narcosis of good length, but some alcoholics required more than this amount. Practical experience lead us to feel quite confident in saying that a fairly lengthy operating period can be maintained in

many cases with a quantity less than 3 c. c. We are unable to confirm this statement at the present time, however, since the smallest amount prepared for the market is in 3 c. c. vials.

INDUCTION AND OPERATING NARCOSIS

Average induction of 99 cases,	58.6 sec.
Average narcosis of 98 cases,	58.91 sec.
Average induction of 9 cases (somnoform + air),	55.88 sec.
Average narcosis of 9 cases (somnoform + air),	1 min. 11.3 sec.
Average induction of 90 cases (somnoform — air),	58.87 sec.
Average narcosis of 89 cases (somnoform — air),	57.06 sec.
Longest induction (3 c. c. used),	2 min. 5 sec., narcosis 1 min.
Shortest induction (3 c. c. used),	15 sec., narcosis 1 min.
Longest narcosis (3 c. c. used),	2 min. 30 sec., induction 1 min. 10 sec.
*Shortest narcosis (3 c. c. used),	10 sec., induction 1 min. 22 sec.

An analysis of the records of induction and operating narcosis informs us that the latter period is about equal to the former, in length of time, when somnoform is given without air. When somnoform is administered with air the narcosis was fourteen and a fraction seconds longer than the narcosis induced without air. These records also show us that we may expect an operating narcosis of about one minute with 3 c. c. of somnoform in the average case.

Cardiac and Respiratory Observations

PULSE

Pulse rate during administration compared with rate before taking anæsthetic:

103 Cases—Rate increased in 72 or 69.9 per cent.
Rate decreased in 25 or 24.27 per cent.
No change in 6 or 5. 82 per cent.

In three cases there was an increase in the pulse rate but a marked diminution in force during the administration In one case there was marked diminution in force with decrease in rate of the pulse.

Pulse rate upon recovery compared with rate before taking anæsthetic:

106 Cases—Rate increased in 25 or 23.58 per cent.
Rate decreased in 72 or 67.92 per cent.

In four cases there was marked diminution in force upon recovery.

* Marked decrease in force of heart during administration.

RESPIRATION

Rate during administration compared with rate before:
94 Cases—Rate increased in 64 or 68.08 per cent.
Rate decreased in 21 or 22.34 per cent.
No change in 9 or 9.57 per cent.
Rate upon recovery compared with rate before:
104 Cases—Rate increased in 41 or 39.42 per cent.
Rate decreased in 40 or 38.46 per cent.
No change in 23 or 22.11 per cent.

In studying cardiac and respiratory tabulations we should take into account the fact that the pulse and respiration were no doubt increased in frequency in many cases because of nervous fear before the operation. Therefore, a patient's normal pulse and respiratory rate may have been charted higher in our records than was that patient's normal pulse and respiration. In our comparison, then, of rates before with rates during administration, and also rates before with rates after administration, it naturally follows that we should have a higher per cent. of cases in both our cardiac and respiratory tabulations in which the rate was increased and a correspondingly lower per cent. of cases in which the rate was decreased.

From our observations on the heart beat we may state that the pulse rate was increased during the administration in the vast majority of cases and that it was usually under normal upon recovery.

In regard to respiration we may say that the rate is generally increased during anæsthesia and that, upon recovery, we found about an equal distribution of cases in which the rate was increased and in which it was decreased. The breathing at no time appeared labored except in highly nervous, hysterical patients when it was sometimes spasmodic in character in preliminary anæsthesia. Measured, automatic breathing was typical of complete, deep anæsthesia and in no case did the patient become cyanotic.

OBSERVATIONS ON THE EYE

93 Cases—Pupil dilated in 75 or 80.64 per cent.
Pupil not dilated in 18 or 19.35 per cent.
72 Cases—Corneal Reflex abolished in 43 or 59.72 per cent.
Corneal Reflex present in 29 or 40.27 per cent.

Observations on the eye appear to confirm our deductions of a year ago, *i. e.,* the pupil is usually dilated in the complete, deep stage of anæsthesia.

The corneal reflex was found to be abolished in practically 60 per cent. of cases. Therefore, it is not found absent in deep anæsthesia as

often as the pupil is found dilated. In light anæsthesia the corneal reflex is more often present.

RECOVERY AND AFTER EFFECTS

AFTER CONDITION—91 CASES

After condition—Very good,	23	25.27	per cent.
Good,	51	56.04	per cent.
Fair,	7	7.69	per cent.
Poor,	9	9.89	per cent.
Very poor,	1	1.09	per cent.

An examination of the table of after condition shows us that the patient is in fairly good condition upon recovery in the most of cases.

AFTER EFFECTS—99 CASES

After Effects—Cases with no unpleasant symptoms, 58 58.58 per cent.

Cases with unpleasant symptoms, 41 41.41 per cent.

The principal unpleasant after effects noted and in the order of frequency were numbness of extremities, dizziness, headache, nausea, and involuntary micturition—(4 cases in 110).

In 13 cases of the above named 41 the unpleasant after effects were so slight as to be of little or no importance.—*The Journal of the Allied Societies.*

March 19, 1910.

Editor DENTAL DIGEST.

Dear Sir: In the article entitled "Removal of Pulps," * page 162, DENTAL DIGEST for March, the writer fails to point out the disadvantages of his method, some of them are:

First. The necessary excavating for a permanent filling can usually be done with less discomfort to the patient, after the devitalizing agent has done its work.

Second. In taking care of root canals, we usually need all the room we can get without unnecessary sacrifice of tooth substance.

Third. In cases where arsenic sets up a terrific ache an hour or so after its application, the presence of a permanent filling must be an added complication and vexation.

Sincerely,

J. A. WATTS, D.M.D.

* Reprinted from *The Dental Review.*

THE MUTUAL DEVELOPMENT OF UPPER AIR TRACT, JAWS, TEETH AND FACE, AND THEIR ECONOMIC IMPORTANCE TO THE HUMAN RACE*

By W. Sohier Bryant, A.M., M.D., New York City

Some day a quiet revolution will take place in the viewpoint of the more intelligent dentists. And with it will come a much wider conception of the functions of the dentist. We shall not cease to prevent or arrest caries, to quiet pains and to replace missing organs. But we shall do it with a new aim in view, to establish for that mouth proper conditions for speech, mastication, appearance *and breathing.*

The last item, "breathing," will make all the difference in the world. We shall still be servitors of the function of mastication and speech. But we shall see to it that our patients, and our patients' children are able to breathe properly. And health, stature and long life will follow in the wake of our labors.

It is interesting to see that this rhinologist has grasped this point and presents it to his medical confrères.—Editor.

Orthopedic surgery occupies an important and constantly widening position in the field of reconstruction and correction. The "dental orthopedist" has only just begun to attract attention, and orthopedics of the nose, one might say, has scarcely as yet come into existence; but there are indications that it will outstrip all other branches of corrective surgery, because it directly affects the whole organism and the mental capacity instead of the less important locomotor functions.

I will endeavor in this article to show the importance of the normal development of the upper air tract and teeth, the dangers following imperfect development, and, in so far as possible, the causes and means of prevention of developmental irregularities. . . .

MOUTH BREATHING

The first and most important in our series of pathologic events is mandatory mouth breathing, due primarily either to nasal obstruction or to habit mouth breathing, which results secondarily in nasal occlusion. Habit mouth breathing may follow acute mandatory mouth breathing, or may result from the habit of constant talking seen in some children, which requires them to have their mouths always open. Or, again, it may come from deficient muscular development of the jaws and mouth, dependent on artificial feeding, under which condition the child does not make proper use of these structures.

* Read in the Section on Stomatology of the American Medical Association at the Fifty-eighth Annual Session, June, 1907, and reproduced here by the courtesy of the *Journal of the American Medical Association.*

During mouth breathing the tongue does not rest firmly against the hard palate as it normally should, pressing against the alveolar arches, but lies loose in the mouth. The lateral thrust which the tongue exerts on the alveolar arches under normal conditions is lost, and the weight of the face and facial muscles tends to check the lateral developments of the superior maxillary bones and dental arch proportionately to the antero-posterior development.

The superior maxillary bones contracted by abnormal development and conditions dependent on mouth breathing necessitate arrest of the development of the nasal fossæ chiefly in the horizontal plane. The nasal structure is especially susceptible to pathologic variations. The superior alveolar arch is contracted in proportion to the arrested development of the superior maxilla. The teeth, however, remain of normal size and number and must be crowded into a shorter line, forcing many out of position.

* * * * * * *

There are two forms of mouth breathing. The first is due to nasal occlusion and is characterized by the adenoid jaw or retreating chin, which recedes and falls behind the upper, and consequently the upper teeth lock in an anterior position in relation to the under, which are drawn downward and backward by muscular action in the efforts to keep the mouth open for breathing. If nasal breathing is regained in this form without dental regulation the pressure of the closed lips pushes the edges of the upper middle incisors backward and forms the "rabbit" mouth. The second form of mouth breathing is characterized by the prognathous or tonsil jaw. If there is faucial obstruction added to the mouth breathing from nasopharyngeal causes, the lower jaw is then drawn downward and forward by muscular action, in order to clear the mouth and fauces, and the lower jaw lies in an anterior position and the inferior incisors occupying an interior position in relation to the upper, causing wapper-jaw.

When the superior teeth are thus displaced it is impossible for natural development ever to overcome the deformity. With the irregularity of the teeth and the uneven bite, closure of the jaws cannot give a firm muscular fulcrum or support which moral character seems curiously enough to require to make it steadfast. The teeth lock in whatever position they first meet. If they chance to be irregular at the start they lock in that position and no spontaneous regulation is possible.

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It is hard to estimate fully the economic importance of the misplacement of the teeth and the resultant changes in the upper air tract.

They are summed up in lessened physical and mental capacity and resistance; that is to say, they fall below the normal phylogenetic standard.

Insufficiency in lung expansion and in blood oxygenation must necessarily accompany mouth breathing, because this condition requires a continued more or less conscious muscular effort to keep the buccal orifice and fauces clear enough to allow sufficient flow of air to supply not the wants but only just enough to maintain life. Consequently during sleep this supply must be more or less diminished to the detriment of the entire organism. The extreme diminution of the air supply is often accompanied by a very annoying (to others) vibration of some part of the mouth or soft palate.

Besides the insufficient quantity of the air supplied by mouth breathing, its quality is more impure and more definite in moisture and warmth than when the air is supplied through the nose. The most important defect in this respect is the greater number of bacteria reaching the fauces, thus causing increased frequency of local and general infection. Among the local infections we may place infection of the mouth, as shown by the greater prevalence of carious teeth in mouth breathing. The fauces are often affected, as is shown by inflammation of the faucial tonsils. In like manner the pharynx is affected, as shown by disease of Luschka's or the pharyngeal tonsil. In other words, the whole lymphoid ring may be involved. The lower air tract is also very likely to be infected, and there is a tendency to coryza, influenza, nasopharyngitis, tonsilitis, laryngitis, bronchitis and pneumonia. Among general infections are tuberculosis, diphtheria, the exanthemata, typhoid fever, cerebro-spinal meningitis, and acute articular rheumatism resulting from toxemia consequent on infection of the lymphoid ring.

The normal nose sifts the inspired air of mechanical impurities which might cause local irritation. It also serves to check inspiration of irritant gases by warning the individual of their imminent danger. Those individuals who are unable to use the nasal safeguard are more subject to laryngeal, tracheal, bronchial and pulmonary irritation due to inspiration of mechanical or chemical irritants, dust, gases and too dry or too cold air. The English custom of wearing respirators is undoubtedly due to the prevalence of mouth breathing in that country.

Among the conditions dependent on a nose contracted by mouth breathing are defective ears, inducing disturbances, from subjective irritation, provocative of insanity, and deafness with a tendency to suppuration, mastoiditis, meningitis, infective phlebitis, cerebral and cerebellar abscess, pyemia, septicemia and death.

The imperfect development of the air sinuses of the head is another result of arrested growth. This causes impairment of vocal power and

quality of voice, with a tendency to headache and sinusitis, which may develop later into meningitis, brain abscess, general sepsis and death.

* * * * * * *

Ocular defects often are caused or aggravated by intranasal complications and the asymmetry of the facial bones due to the nasal occlusion and irregular teeth.

Mastication is a most important economic factor for the more civilized portion of the human race. Its deterioration has been observed in Great Britain.

As we have previously stated, caries of the teeth is most common in mouth breathers. It can be prevented to a large extent by nasal breathing.

ETIOLOGY

The causes of this condition are nasal obstruction, mouth breathing and deficient and irregular development of the superior maxillary bones, probably due to the disturbance of the muscular balance normally furnished by the closed jaw for the greater part of twenty-four hours. Instead of this we have an unbalanced muscular tension and thrust working for the whole twenty-four hours. With the disturbance in the development of the maxillary bones come the irregularity of the teeth and the deficiency and irregularity of the nasal development and face as a whole. Any one of the factors may be the first to start the pathologic chain, but usually the nose is first to blame.

As to dental occlusion and irregularity of the teeth, the prognosis is absolutely bad without orthodontia. With correction, success is assured at apparently any age.

After the first dentition is well under way, regulation of the teeth and widening of the arch may be found necessary in order to allow proper development of the alveolar process and perfect closure of the teeth requisite for normal nasal development. After the second dentition, dental correction is still more important for the same reasons.

The premature loss of any of the deciduous teeth is an important accident, because it interferes with the symmetrical development of the jaw and the regular eruption of the permanent teeth. Still more to be deplored is the loss of any of the permanent teeth from caries or other disease, because the absence of any of the teeth causes a corresponding shrinkage of the maxilla and irregularity of the remaining teeth—conditions very difficult to combat.

The exact age at which the regulation of the teeth loses its orthopedic value in relation to the nose and ceases to affect the nasal fossæ has not

been fairly determined, but it seems reasonable to suppose that up to 25 or possibly 30 years of age it is still useful. The removal of nasal obstructions is, of course, always indicated, but after the age when the dental correction no longer affects the nasal fossæ the only hope for restoration of nasal breathing is the complete removal of all the nasal obstruction. Although orthodontia no longer, at this advanced age, has a direct bearing on the nasal cavities, it still has some relative importance, for in order to maintain nasal breathing which has been surgically produced it is necessary to use the nose for respiration—a difficult task for an individual with irregular teeth and imperfect dental occlusion.

CONCLUSIONS

It is of extreme importance to keep up infantile nasal breathing on account of the many untoward conditions which may follow its loss. The sooner the defect of mouth breathing is rectified the more simple its treatment and the better the results. The importance of nasal breathing is manifold; it is a safeguard against infection, an aid to proper physical and mental activity through a sufficient supply of oxygen, a requisite of moral strength, esthetic outlines, and a protection to the faculties of hearing, speech and smell. But, most important of all, it is fundamentally necessary to perfect oral occlusion and the power to masticate food.

The proper regulation of the teeth is an assistance to the proper development and subsequent function of the upper air tract, and is especially necessary for the perfect restoration of the nasal respiratory function between the fifth and twenty-fifth years.

The developmental relation of irregular teeth and cramped nasal passage is a reciprocal one. The course of treatment to pursue if nasal breathing can be maintained is to straighten the teeth first and operate on the nose later if necessary. If nasal breathing can not be maintained, operate on the air passage sufficiently to allow nasal breathing before regulating the teeth. Then regulate the teeth and, last of all, do the final work of the nose if any further operating is required.

I wish to thank Dr. E. A. Bogue and Dr. Frederick L. Stanton for many ideas and much help on the stomatologic part of this paper.

THE funds are said to be available for the opening of twenty-two charitable clinics in New York City, if there are enough dentists ready to give part time, as do the members of the medical profession.

REPORT OF WORK ON "BASE VERSUS NOBLE METALS IN THE MOUTH"

By Clarence J. Grieves, D.D.S., Baltimore, Md.

Read before the American Society of Orthodontists, Cleveland, 1909

Conclusion: That the noble metals only are fit for appliances in the human mouth.

That while there is greater danger of enamel decalcification from noble than base metal appliance, this is only early in their application, and it may be met by intelligent prophylaxis, whereas the objections to the base metal cannot be overcome, for the crypts increase and the whole appliance becomes a retainer of filth applied to the enamel.

That ligatures should be used as little as possible, if at all, and that appliances should be of the removable type, if possible.

That every retention center between tooth and appliance should be covered by protective bands.

That some gutta-percha preparation take the place of oxyphosphate, or be used in conjunction with it.

That prophylaxis is necessary, but will not alone prevent decalcification, and may induce it.

That silver-nitrate solution should follow the thorough Smith treatment by coagulating the buccal mucus, protects and does not stain the tooth enamel unless defects are of such depth as to call for operative procedure.—*Items of Interest.*

FOR BETTER TEETH AND HEALTH

The interest and enthusiasm manifested yesterday in giving the system of dental clinics in the public schools a good start cannot fail to promote the welfare of thousands of children, physically, mentally and morally. In helping them to better digestion, better health, more peace of mind and more opportunity for study it will improve their chances of success later in life. Therefore it will directly and surely benefit Cleveland.

There is true philanthropy in such work for the generation soon to take the center of the stage, and there is enlightened public policy as well. It will prove a wise and timely extension of the activities of the

schools, and it will contribute materially to the progress and well-being of the entire community.

Cleveland is setting an admirable example for other centers of population and civic life in looking after the teeth and health of its school children, as they were never guarded before this latest development of the system of popular education which has been a saving force in the life of the nation.—*Cleveland Leader*, March 19, 1910.

PERTAINING TO GOLD INLAYS

One Must Get Accustomed to Anything to Master It

When you learn a new process, be it the art of walking, so difficult to the baby, or that of riding a bicycle, or playing the piano, at first you must use your will. You have to push, to "put your mind on it." But this uphill work is soon replaced by the smooth-running wheels of habit; and then, instead of pushing, you may ride.

DONT'S

Don't use anything but pure gold for your inlays, and be sure it is free from borax and dross. If you want a stronger gold for bridge attachment, use gold alloyed with platinum.

Don't use scrap gold, and expect good castings, for it is impossible.

Don't use the crucible in the flask, to melt the gold in, to form a button. Do this on a piece of charcoal.

Don't overheat your investment, as all the heat required is enough to burn out the wax. Plaster disintegrates at three hundred degrees.

Don't fail to use the magnifying glass on the cavity side of the inlay.

Don't fail to remove every trace of investment from the filling.

Don't knock the wax inlay off the sprue wire, while investing.

Don't fail to seat, and reseat the gold inlay several times before cementing.

AFTER CASTING

The excess gold is sawed off at the sprue, and the filling mostly finished out of the mouth. It is always best to examine the cavity side of the inlay under a magnifying glass so as to see any little beads of gold which would prevent it going thoroughly to its seat. As these fillings fit the cavity so tightly, it is best to drive them to place several

times, before setting, with a stick and mallet, and when the cement is in place, seat again with mallet and stick.

This repeated tapping with the mallet, in different directions, will seat an inlay better than it can possibly be done by direct pressure on the inlay.

The margins can now be gone over with stones, and disks or polishing tapes and finally polished. When prosthetic pieces are being made, Taggart's green wax should be kept at a workable temperature by frequently holding the model and wax in water at 138 degrees.

The possibilities for displaying ingenuity in constructing different prosthetic pieces are only limited by the versatility of the dentist. —W. H. Taggart, *Western Dental Journal.*

LORD CHESTERFIELD'S ADVICE TO HIS SON

The letters which Lord Chesterfield wrote to his son, Philip Stanhope, contained so much of the philosophy of every day life that they are justly famous as a manual of good manners.

The following extract taken from a letter dated May 15, 1749, would seem quite as apropos to-day as ever it was:

"You must not neglect your dress either, but take care to be *bien mis.* Pray send for the best operator for the teeth at Turin, where I suppose there is some famous one, and let him put yours in perfect order; and then take care to keep them so afterwards yourself. You had very good teeth, and I hope they are so still; but even those who have had bad ones should keep them clean; for a dirty mouth is, to my mind ill-manners. In short, neglect nothing that can possibly please. A thousand nameless little things, which nobody can describe but which everybody feels, conspire to form that *whole* of pleasing; as the several pieces of a mosaic work, though separately of little beauty or value, when properly joined form those beautiful figures which please everybody."—Frederick Crosby Brush, D.D.S.

Pulp Devitalization in Deciduous Teeth.—It is extremely hazardous, dangerous, and unjustifiable to use arsenic for destroying pulp or deciduous teeth. This is doubtless the cause of the non-eruption of many permanent teeth.—A. W. Harlan, *Dental Review.*

THE INFLUENCE OF MASTICATION ON THE DEVELOPMENT OF THE LINES OF THE FACE, HEAD AND THORAX

Wherever we turn nowadays new evidence of the importance of proper mastication and breathing appears. This little extract from a paper by E. A. Bogue, D.D.S., entitled "Infant Diet a Factor in Dental Irregularities and Decay,"* is a most interesting and instructive item. The experiments here reported are too few in number for the results to be accepted as conclusive, but they give us food for earnest thought and further observation.—EDITOR.

* * * * * * *

DR. LAWRENCE BAKER to-day showed me photographs illustrating some experiments that he has made on, I believe, two of a litter of rabbits. These two had the teeth upon one side ground down so that mastication upon that side was impossible. Hence, function of that side was not fulfilled. These conditions were maintained for about seven months, and then the whole litter was killed, and the skulls cleaned for examination. The two that were mutilated were found to have the mandible much smaller on the mutilated side, causing a deflection to that side. This deflection was shared by the upper maxillary and the nasal passages as well, which were both smaller on the mutilated side, causing, necessarily, curvature of the nasal septum.

This diminution of size continued right on up through the skull, the mesial suture of which was deflected toward the side of the mutilation, while the whole brain cavity on that side was visibly smaller than the other side. The weight of these two skulls was less than that of the other skulls, belonging to the same litter. All of which goes to prove the necessity of the performance of function during the periods of growth, and the inevitable deformity when this functional activity is interfered with or suspended.

Dr. Baker further reports that "this variation was not confined entirely to the bones of the head, for the bones of the thorax were also found to be distorted; in both cases the sternums were deviated, the ribs were twisted, and there was a spinal curvature in the dorsal region."

Dr. Baker also reports that

"This experiment strongly indicated how important is the masticatory equipment of man to the development of the head, and it also brings fresh illustration of the importance of the sadly neglected temporary dentition which serve during the important developmental period of childhood."—*The Journal of the Allied Societies.*

* Read before the American Academy of Dental Science Dec. 1, 1909.

EDITORIAL

ORAL HYGIENE CAMPAIGNS

FEW dentists question that something should be done to lessen the prevalence of oral uncleanliness, and the serious effects therof. Recent investigations show that oral uncleanliness affects about 97 per cent. of our school children and an almost equally large percentage of the adult population.

It is also seen that the effects of oral uncleanliness are among the most serious that befall the race. Physical, mental, and moral insufficiencies are now traced directly to this source.* Physicians are finding in decayed and unclean teeth the spots from which the poisons of scarlet fever and other communicable diseases are taken into the body, there to do their deadly work. They are finding also that many persons with unclean mouths are "disease carriers" and while not suffering from these diseases themselves, may and do communicate them to others.

It seems likely that in the near future the establishment of correct breathing and oral cleanliness will become two of the most important steps in preventive medicine. In this work any dentist may occupy an important place, if he qualifies for it.

Widespread public activities are afoot in behalf of oral hygiene for school children. It will be profitable for us to inquire how such activities may be most wisely conducted. Three plans are open.

1. The Educational. This involves examination of the mouth, notation of all conditions, and a report to parents and teacher of those conditions and the means of repair. It provides also for instruction of children and parents.

2. The repair of those conditions without any careful examination or serious attention compelling report. This is purely charity.

3. A combination of the two plans. It includes the examination, notation and education as above. Also a report to those responsible for the child. It provides charity work only for its proper recipients,—those unable to pay.

Evidently plan number three is the wise one. We are not seeking to develop an army of charity children. It is estimated that more than twelve million school children in the United States are to-day suffering from serious physical defects traceable in large degree to oral uncleanliness. These include enlarged glands, malnutrition, defective breath-

*See article by W. A. Evans, M.D., Commissioner of Health, Chicago, on page 290 of May DENTAL DIGEST, and page 355 of this number.

ing and toxic conditions. The dental profession has not the means or the men to correct these conditions on the basis of plan number two. If each of the 35,000 dentists in the United States were to devote his entire time, 8 hours a day, 6 days a week for the next school year of 40 weeks to this work, it is very doubtful whether these conditions could be corrected.*

There is no reason why the dental profession should seek to assume this burden on a charity basis as some enthusiastic oral hygienists would have us. The parents of many of the pupils are able to pay for dental services in the regular way. They need only to be educated. And that education is our plain duty. Examination of the children in school and notation of requirements is a first and important step in the work. Lectures or other approved means of education may follow.

But the wisdom of establishing free clinics, even though they be in schools or with approval of school authorities, for indiscriminate free service may well be questioned.

Milford, Delaware, is said to have hit upon the happiest solution known to the writer. It plans to require of every child entering school next fall a certificate of physical and dental fitness, signed by a properly constituted board of inspectors, one of whom is a dentist. Parents of children able to pay for remedying physical evils will be required to see that all defects are remedied before the child is admitted to the class room. Parents too poor to pay for such services may take a properly certified card to any dentist or physician in town and receive the necessary services free of charge.

This plan seems to deserve the heartiest commendation, as does the public spirit of the physicians and dentists who thus assume the burden of caring for those unable to pay. Should this plan be continued, the widely advertised centres of learning may look to their laurels, or in average efficiency of school children this little community may cause them to blush.

Campaigns for oral hygiene are upon us. They promise great things for those we serve and for our profession. Let us conduct them wisely, with an eye always to the greatest good of the greatest number.

* He would work 1,920 hours on 343 patients. It is doubtful whether proper conditions of cleanliness could be restored, abscesses treated, cavities filled, correct breathing established, opportunities for proper eruption of the permanent teeth made and the more serious mal-occlusions corrected in six hours per child.

PRACTICAL HINTS

FITTING INLAYS TO PLACE.—When from any cause an inlay does not fit, its cavo-surface is coated with a mixture of carborundum (180 mesh) in glycerin, the inlay held tightly in position with the fingers, while with a convenient plugger point in the mechanical or electric mallet, blows are so directed that the jarring of the inlay in the cavity grinds a perfect joint.—W. H. T. COLLINS, *Garretsonian* (*The Western Dental Journal*).

TAKING IMPRESSIONS OF SOFT GUMS.—A case was presented where the teeth had been extracted at the age of fifteen. The process had completely absorbed from the first molar on both sides, to the median line, leaving no ridge except soft, flabby gum-tissue. The softest plaster would force the gum out of normal position. I mixed plaster as thin as for coating matrix for gold inlay and painted in on the gums with a camel's hair brush, kept adding to it till I got sufficient thickness to remain firm when set. I could then press impression material to position with force enough to obtain a good impression.—EMERSON CUNNINGHAM, Parry Sound, Ont., *Review* (*Western Dental Journal*).

AN AMALGAMATOR.—Here is a practical hint I believe is worth anyone's trial. There is an amalgamator on the market to hasten the mix. Here is one I have used for years and thought everyone knew it:

One dram of muriatic acid to four ounces of water. It runs the mercury and alloy together in a jiffy and cleanses the alloy. I usually put a teaspoonful of the acid in a peroxide bottle with a screw sprinkler top, and fill with water. Can make a barrel for fifty cents and I believe that is the price of two ounces of the market preparation.—H. L. ENTRIKEN, D.D.S., Enid, Okla.—*Western Dental Journal.*

HINTS ON VULCANIZING.—In vulcanizing it is of greatest importance to have a perfectly functioning thermometer and manometer. In order to attain this end, the apparatus should be first heated to about 100° C.; then the steam escape valve is opened for a moment in order to allow

NOTE.—Many of these Practical Hints have been taken from "Practical Dentistry by Practical Denists."

the air still present in the vulcanizer to escape. This is of great influence on the correct functioning of the thermometer and manometer.

The hornlike toughness of the rubber in vulcanizing is best obtained by allowing the gas to develop and escape very slowly. The more rapidly and highly the heat is raised, the more quickly the sulfid of hydrogen escapes, and the less perfect the hardening process will be. If the heat is raised too rapidly, the rubber hardens too quickly on the surface, and becomes porous interiorly, because the gas cannot escape completely.—Geo. Poulson's Bericht.—From *Dental Cosmos.*

Where Pressure Anæthesia Fails.—Teeth of old persons, teeth of inveterate tobacco chewers; worn, abraded, and eroded teeth, teeth whose pulp canals are obstructed by pulp nodules; teeth with metallic oxids in tubules; teeth with leaky old fillings; badly calcified teeth—mainly all from one and the same cause; namely, clogged tubuli. In most of such cases no amount of persistent pressure will prove successful. —Geo. Zederbaum, *Dental Register* (From *Dentists' Record*).

Pulp-Canal Treatment.—The canal is flushed with camphophenique in which thymol has been dissolved in the proportion of forty grains to an ounce. A gutta-percha point, fastened to the end of the root plugger by heating the point and pressing it gently to the large end of the cone, is dipped into camphophenique and then into iodoform powder, and forced to place in the canal.—J. Leon Williams, *Dental Cosmos.*

Treatment of Putrescent Roots.—With Callahan's sulphuric acid method, but with sodium peroxid substituted instead of sodium bicarbonate, the chemical interchange will result in peroxid of hydrogen and sodium sulphate. The newly formed peroxid of hydrogen will bleach the tooth and by evolution of gas throw out any material present. The sodium sulphate will saponify the fatty material and the root be left in a perfectly clean and sterile condition.—H. Printz, *Western Dental Journal.*

Trichloracetic Acid.—This is an excellent treatment for pyorrhea, as it arrests the formation of pus quickly. It acts like a charm in putrescent pulp canals. Carefully applied to spongy gums, it gives good results. It is also excellent in pericementitis arising from calcic deposits. Because of its astringent and escharotic action it destroys abnormal surface tissue and resuscitates it after a single application.—*Dental Brief.*

Treatment in Case of Acute Forming Abscess.—Open, if possible, through the pulp-canal, otherwise lance and open through the bone, using antiseptics, such as oil of cloves, creosote, or Black's 1, 2, 3. For the relief of pain, hot foot bath, hot water to the face, Dover's powder five to fifteen grains, and five to thirty grains iodid of potash, to control the pus formation, and eliminative agents to carry away the poison.—Elgin Mawhinney, *Dental Review.*

Dressing for Pulpless Teeth.—Creasoform, a light green powder, without smell or taste, soluble in alcohol and ether, and which decomposes in contact with animal tissues into creosote and nascent formaldehyd, is useful as a dressing for pulpless teeth; make into a paste with any of the essential oils.—B. J. T. Bennette, *Dental Record.*

Treatment of Root-canals with Putrescent Pulp Contents.—Oxidize the contents of the canals with permanganate of potash, inserting a small crystal and waiting for it to decompose the organic matter present. Cleanse carefully, following with aristol and oleum gaultheria when pus is not present. If pyemic conditions exist, precede the aristol with zinc chlorid 5 to 10 grains to 1 dram water, or formalin 5 per cent. solution.—Louis Jack, *International Dental Journal.*

Making Wax Inlay Pattern.—A given wax is not suitable for all cases or all seasons of the year; *e. g.,* a wax rich in stearine is best for inlay patterns; pink base plate wax for crown foundations; and yellow bees' wax for cusps on shell crowns, etc. Wax for any of these purposes should be so highly colored that its color would make an extreme contrast with the color of the enamel, thus facilitating the finishing of the margins. Wax patterns should not be handled with the fingers, but should be placed on a cloth, and by that means handled while inserting the sprue-wire; or, if possible, the sprue-wire should be inserted while the wax is in the mouth. If oil or vaseline have been used in connection with the pattern, the latter must be freed from it with soap and water before investing. This can be easily and safely accomplished by using a small camel's-hair brush and liquid soap.—Jas. G. Lane, D.D.S., *Items of Interest.*

Principles in Cutting Enamel.—The structural elements of an enamel wall must be arranged in certain ways in order to warrant strength, just like the bricks or stones and mortar in a mason's wall. The principles of arrangement can be definitely and clearly stated:

(1) The enamel plate must be supported upon sound dentin. If it is not, all the enamel projecting beyond the line of the dentin support is sustained only by the cementing substance between the rods, and force upon this piece will easily crack the enamel through on the lines of the cementing substance. No substitute can be made to give the same elastic support as the sound dentin. Moreover, the enamel itself in such positions has been weakened by the solution of cementing substances from between the rods extending from the dento-enamel junction outward.

(2) The rods which form the cavo-surface angle must run uninterruptedly to the dentin. The first condition may be fulfilled and not the second. If the enamel beyond the line of the last rods which rest on the dentin is unsupported, and is held together only by the cementing substance, though this may be perfect, it is not strong enough to sustain any force directed, against its surface, especially the force required to condense gold against it.

(3) The rods which form the cavo-surface angle must be supported by a portion of sound enamel, the inner ends of whose rods are supported by sound dentin and the outer abutting on the cavity wall, all supporting the marginal rods like a buttress. This is the secret of strong enamel margins. The rods which form the margin of a cavity at the surface should extend to the dentin, and be supported by a triangular portion of enamel in which the inner ends of the rods rest on the dentin. Then the outer ends may be covered by a filling material, and will support the marginal rods against all forces brought to bear on the surface. Reasonable force can be applied against such a wall without any danger of injury.

(4) The cavo-surface angle must be so trimmed as to avoid danger of crumbling the angle. There are two reasons for beveling the cavo-surface angle, but first it may be considered simply as a means of avoiding the sharp angle.

The four structural conditions just stated must be considered as the principles which underlie the formation of strong enamel walls and margins. It must be remembered that they are principles. They cannot always be perfectly attained, but, in proportion as they are carried out the walls are strong and permanent, and as we learn to observe them in the preparation of cavities we find that we more and more often recognize that failures that have occurred in our own work and in that of others have been caused by failure to attain these conditions.—F. B. Noyes, *Items of Interest.—Dental Cosmos.*

SOCIETY AND OTHER NOTES

Officers of Societies are invited to make announcements here of meetings and other events of interest.

CALIFORNIA.

The Thirty-seventh Annual Meeting of the California State Dental Association will be held in San Francisco, June 22, 23, 24, 25, 1910.—C. E. POST, *Secretary.*

The Thirteenth Annual Meeting of the Southern California Dental Association will convene June 16, 17, and 18, 1910, at the College of Dentistry, University of Southern California, Fifth and Wall Streets, Los Angeles.—B. FRANK GRAY, *Chairman Publicity Committee.*

COLORADO.

The Fourteenth Annual Session of the National Dental Association will be held at Denver, Colo., July 19-22, 1910.

The National Association of Dental Faculties will meet at the Hotel Shirley, Denver, Colo., Monday, July 25, at 10 o'clock, A. M. The Executive Committee will meet to consider business of the Association at 9 o'clock A. M.

The Hotel Shirley is connected by bridge with the Savoy, where the Meeting of the National Association of Dental Examiners takes place on the same date.—B. HOLLY SMITH, *Chairman Executive Committee,* N.A.D.F.

CONNECTICUT.

The Dental Commissioners of the State of Connecticut will meet at Hartford, June 16, 17, and 18, 1910.—GILBERT M. GRISWOLD, M.D.S., *Recorder.*

GEORGIA.

The Forty-fourth Annual Meeting of the Georgia State Dental Society will be held in Atlanta, June 14, 15, and 16, 1910.—WALTER C. MILLER, *President;* DELOS L. HILL, *Secretary.*

INDIANA.

The next meeting of the Indiana State Board of Dental Examiners will be held in the capitol, Indianapolis, June 13, 14, 15, and 16, 1910.—F. R. HENSHAW, D.D.S., *Secretary.*

IOWA.

The Iowa State Board of Dental Examiners will hold a meeting for the examination of candidates for license to practise dentistry in Iowa, beginning June 6, 1910, at 9 A. M., at Iowa City.—E. D. BROWER, *Secretary.*

KANSAS.

The next meeting of the board for the examination of candidates for license to practice dentistry in Kansas will be held in Topeka, Kan., beginning June 21, 1910, at 9 o'clock A. M.—F. O. HETRICK, *Secretary,* Ottawa.

MAINE.

The Forty-fifth Annual Meeting of the Maine Dental Society will be held at the Rangeley Lake House, Rangeley, June 23, 24, and 25, 1910.—I. E. PENDLETON, *Secretary.*

MICHIGAN.

The annual meeting of the Michigan State Dental Society will be held June 13-15, 1910, at Detroit, Mich. The headquarters will be established at the new Hotel Tuller, at which place both the meetings and exhibit will be held.—G. F. BURKE, *Secretary.*

The next regular meeting of the Michigan State Board of Dental Examiners for the examination of applicants for registration will be held at Ann Arbor, beginning Monday, June 20th, and continuing to the 25th. Applications must be in the hands of the secretary at least fourteen days previous to the examination, and should be addressed to A. W. HAIDLE, *Secretary-Treasurer.*

MINNESOTA.

The next meeting of the Minnesota State Board of Dental Examiners will be held at the Dental Department of the State University in Minneapolis on June 6, 7, 8, and 9, 1910.—DR. G. S. TODD, *Secretary.*

NEW JERSEY.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual meeting for examining candidates for license in the Assembly Chamber of the State House at Trenton, N. J., July 5, 6, 7, 1910. Practical work July 5th, beginning at 8 A. M., theoretical written Examination 6th, 7th.

The Fortieth Annual Meeting of the New Jersey State Dental Society will convene in Asbury Park, N. J., at the "Casino," July 20, 21, 22, 23, 1910. Many fine and instructive papers will be read. Hotel Columbia will be the headquarters of the society.—CHARLES E. MEEKER, D.D.S., Newark, N. J.

NEW MEXICO.

The meeting of the New Mexico Board of Dental Examiners will be held at Las Vegas, July 14, 15, and 16, 1910.—M. J. MORAN, *Secretary.*

NORTH CAROLINA.

The Thirty-sixth Annual Meeting of the North Carolina Dental Society will be held at Wrightsville, July 13-16, 1910.—ARTHUR HYNES FLEMING, *Secretary.*

OHIO.

The Fifty-third Annual Meeting of the Northern Ohio Dental Association will be held in Toledo, at Hotel Secor, June 7, 8, 9, 1910.—G. F. WOODBURY, *Chairman of Executive Committee.*

The regular spring meeting of the Ohio State Dental Board will be held in Columbus, June 21 to 23, 1910.—L. L. YONKER, *Secretary.*

OREGON.

The Seventeenth Annual Meeting of the Oregon State Dental Association, June 30, July 1 and 2, 1910.—WALLACE C. SHEARER, *Secretary.*

PENNSYLVANIA.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, June 8-11, 1910.—DR. NATHAN C. SCHAEFFER, *Secretary.*

SOUTH DAKOTA.

The Annual Meeting of the South Dakota State Dental Association will be held at Pierre, June 9 and 10, 1910.—DR. E. J. SCHNAIDT, *Secretary.*

The South Dakota State Board of Dental Examiners will hold its next regular meeting at Sioux Falls, S. Dak., July 6, 1910, beginning at 9 o'clock A. M., and continuing three days. All applications for examination, together with a fee of twenty-five dollars ($25.00) must be in the hands of the Secretary by June 26th.—G. W. COLLINS, *Secretary.*

VERMONT.

A meeting of the Vermont Board of Dental Examiners for the examination of candidates will be held at Montpelier, Vt., July 5th, 6th and 7th, commencing at 2 o'clock P. M., at State House.—J. HOLMES JACKSON, *Secretary*, Burlington.

VIRGINIA.

The Forty-first Annual Meeting of the Virginia State Dental Association will be held at Staunton, August 3, 4, 5, 1910.—W. H. PEARSON, *Secretary*.

WEST VIRGINIA.

The West Virginia State Dental Examination will be held at Wheeling, W. Virginia, on June 8, 9, and 10, 1910. Applicants for examination must file their applications accompanied by the fee.—J. FLEETWOOD BUTTS, *Secretary*

WISCONSIN.

The Sixteenth Annual Meeting of the Southern Wisconsin Dental Association will be held at Jonasville, Wis., June 2 and 3, 1910.—C. W. CALLOER, *Secretary*. The Fortieth Annual Meeting of the Wisconsin State Dental Society will be held at Ashland, July 12, 13, 14, and 15, 1910.—W. L. CHRISTENSEN, *Secretary*. There will be a meeting of the Wisconsin State Board of Dental Examiners, for the examination of applicants for registration, beginning Monday, June 20, 1910, at 9 A. M.

AMERICAN MILLER MEMORIAL

HONOR TO WHOM HONOR IS DUE

All dentists, at home and abroad, are debtors to the late W. D. Miller, whose scientific mind, untiring energy and pride in American citizenship has been one of the potent factors in placing this country at the head of the profession.

Let the old adage, "A prophet is not without honor save in his own country," be the exception in this instance and every loyal American be represented in a lasting memorial to his useful life.

The proposed bronze statue will be erected in the capital city of his native State, that he may share the well-merited distinction of being one of our greatest men.

The invitation to contribute is extended, individually and collectively, through the societies of the country, and your support, both moral and financial, is urgently solicited.

In order that the work may be quickly and efficiently accomplished, contributions may be sent direct to the Treasurer of the American Miller Memorial Fund:—Weston A. Price, 10406 Euclid Ave., Cleveland, Ohio.

EXECUTIVE COMMITTEE: EDWARD C. MILLS, Columbus, Ohio; J. R. CALLAHAN, Cincinnati, Ohio; S. D. RUGGLES, Portsmouth, Ohio.

The W. D. Miller Dental Club of Pittsburg, Pa., was organized in December, 1909, with the object in view of promoting the educational and financial interest of its members.

NATIONAL DENTAL ASSOCIATION

DENVER, COLO., JULY 19-22, 1910

OFFICERS AND COMMITTEES, 1909-10

President—Burton Lee Thorpe, 3605 Lindell Boulevard, St. Louis, Mo.
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J. D. Patterson, Chairman, Keith and Perry Building, Kansas City, Mo.

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C. M. Work (*1912), Ottumwa, Iowa.
W. G. Mason (*1912), Tampa, Fla.

SECOND DIVISION—COMMITTEE ON CREDENTIALS AND AUDITING

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H. B. McFadden (*1911), 3505 Hamilton Street, Philadelphia, Pa.
M. F. Finley (*1910), 1928 "I" Street, N. W., Washington, D. C.

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C. L. Alexander, 203 S. Tryon Street, Charlotte, N. C.
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PHARMACOPOEIAL CONVENTION

M. F. Finley, Chairman, 1928 "I" Street, Washington, D. C.
A. H. Peck, Chicago, Ill.
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Howard E. Roberts, Philadelphia, Pa.
A. R. Melendy, Knoxville, Tenn.

* Term expires.

NATIONAL DENTAL ASSOCIATION CLINIC

One of the special features of the Clinic to be held in Denver will be the surgical section. An operating room will be fitted up in the Auditorium with all modern appliances.

Several dental surgeons have consented to give clinics that will be of unusual interest. All clinics and all meetings will be held in the auditorium. The rooms and arrangements for all clinics are ideal, with plenty of room and light.

Dr. A. W. Starbuck of College of Dental Surgery, Denver, Col., is chairman of the local clinic committee. All clinicians will please write to him and let him know the kind of case needed, and find out what they need to take with them.

For all chair clinics cabinets will be furnished, that the clinician may have a place to put his instruments.

We solicit clinics from any member of a state or district society, and if you have not already sent in your name and the subject of your clinic, do so at once, to any one of the committee.

F. O. HETRICK, *Chairman*,
OTTAWA, KANSAS.

PATENTS

942353. Matrix retainer, J. M. Ivory, Philadelphia, Pa.
943354. Artificial tooth, J. W. Ivory, Philadelphia, Pa.
943415. Tooth-brush holder, O. E. Jones, Fremont, Ohio.
943361. Mouth-brace, C. Mayer, New York, N. Y.
942931. Dental spittoon, C. E. Ritchey, New London, Iowa.
943884. Dental instrument, W. B. Miller, Altoona, Pa.
944158. Revolving cabinet, M. Smith, Crabtree, Oregon.
944115. Dental plugger, C. F. Tully, Madera, Cal.
944254. Making patterns for casting hollow dental fillings, E. P. Binford, Chicago, Ill.
944992. Dental-floss spool, A. J. Holmes, Rockville, Conn.
944836. Artificial tooth, J. A. Williams, Fort Wayne, Ind.
945713. Dental scraper, Charles P. Fritz, Philadelphia, Pa.
945194. Dental chair, Frank Ritter, Rochester, N. Y.
946539. Holder for instruments, John Drexler, Milwaukee, Wis.
947015. Barber's chair, Angelo Fiore, Trenton, N. J.
946962. Dental crown-swaging device, Wm. H. Graham, Detroit, Mich.
947120. Dentifrice, Winfield S. Morrison, San Francisco, Cal.
497378. Fastening means for artificial teeth, Thomas E. Dimelow, York, Pa.
947380. Barber's chair, Charles W. Fischer, and C. Zimmermann, Chicago, Ill.
948711. Dental casting appliance, Elza R. Stealy, Dunlap, Iowa.
948484. Dental plugging instrument, George B. Snow, Buffalo, N. Y.
949273. Guard for dental handpieces, Christian Hinrichsen, Kiel, Germany.
949480. Dental nozzle, Edward S. Hodgson, Jr., East St. Louis, Ill.
949540. Folding tooth brush, Frank E. Kress, St. Paul, Minn.
949587. Tooth brush, Raymond Ludington, Chicago, Ill.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.